

MECHANICS · AUTOS · HOME IMPROVEMENTS

# POPULAR SCIENCE

September 35c

MONTHLY



## Make Your Home a Show Place

PAGE 99





**YOU CAN CLEAN-UP  
SCORES OF JOBS...**

with these popular price  
**WELLER TOOLS**

**POWER SANDER  
and Polisher**

Here's power and performance that exceeds any sander in its price class. 25 square inches of sanding area • Straight-line action—no bucking; sands and polishes *with the grain*; goes all the way into corners • Less than 3" high—fits into tight places • Practically impossible to stall • Takes the irk out of work for only \$14.95



**COMPLETE  
SOLDERING SET**

Here's everything you need for scores of home repair and hobby jobs. Kit contains: 100 watt Soldering Gun with instant heat, dual spotlights, and low-cost replaceable tip features; supply of famous Kester Solder; Soldering Brush for cleaning connections; Soldering Aid for opening old joints, twisting wire, etc. . . . all in a sturdy cardboard case for only \$7.95.



Ask Your Hardware Dealer  
For A Demonstration,  
Or Write Direct For  
Catalog Bulletins.

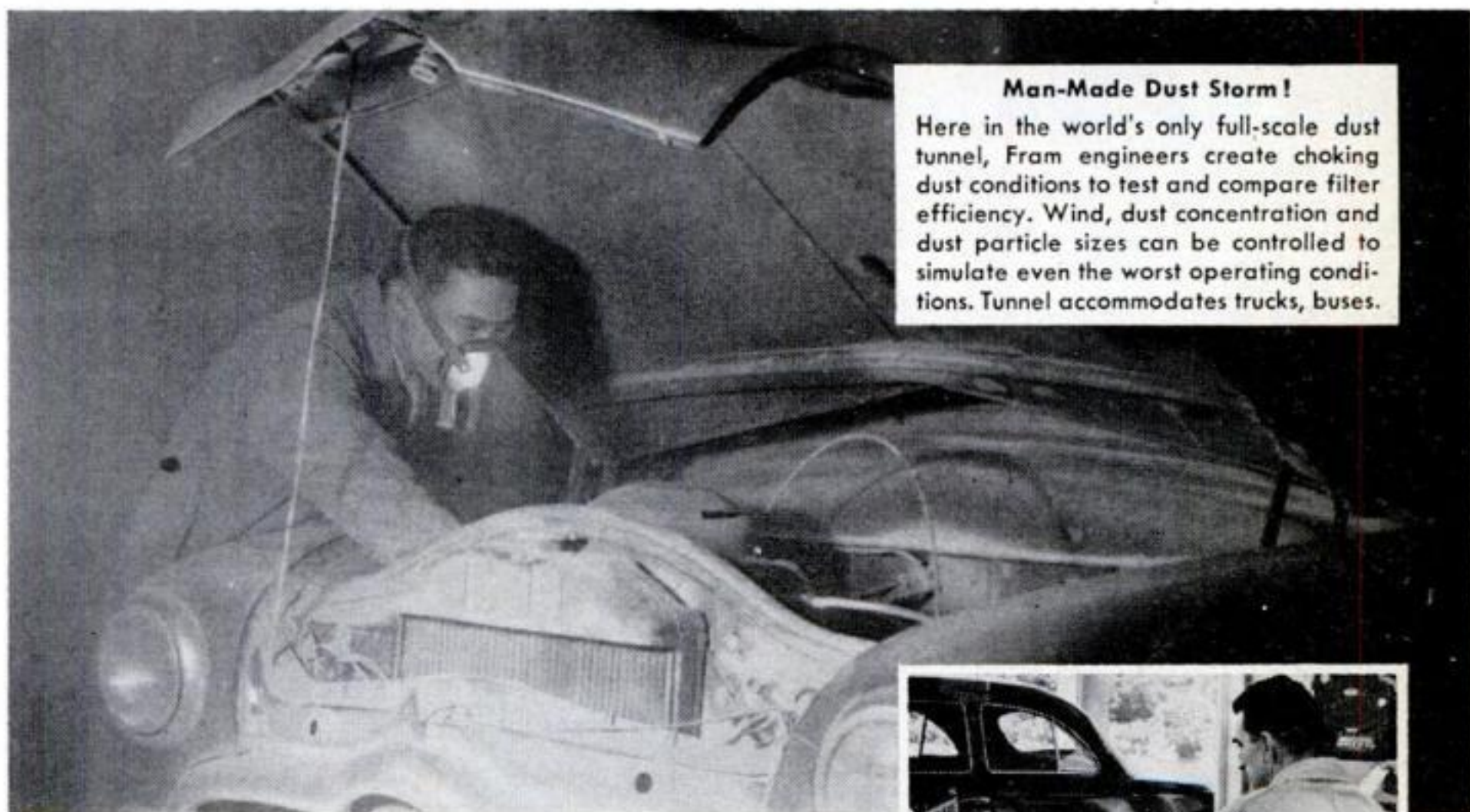
**Weller**

**ELECTRIC  
CORP.**

601 Stone's Crossing Rd.  
Easton, Penna.



# How FRAM research works to save your engine's life!



## Scientists and engineers pioneer filter progress at FRAM Institute

**The Fram Institute** of Advanced Filter Research and Design at Dexter, Michigan, is the leading research center of its kind in the world. Here, FRAM scientists and engineers study new filtration materials and methods . . . test new filter systems in the giant FRAM Dust Tunnel and in actual road tests.

FRAM engineers also join with automotive manufacturers in designing special filter systems for new vehicle and engine models. This work at the FRAM Institute is behind every FRAM product you buy—helping to save your car's engine from excessive wear. When you change your oil and filter, be sure you insist on the finest in scientific filtration—always ask for genuine FRAM.

**FRAM FIRST...in Research...  
in Protection...in Quality...in Preference**

FRAM CORPORATION, Providence 16, R.I. Fram Canada Ltd., Stratford, Ont.



### Test Results Prove Filter Value

After test runs as long as 40 hours, each engine is completely disassembled and each part carefully weighed and studied. The amount of wear on vital parts such as rings, bearings and cylinders determines the efficiency of the filter being tested.



### Tests Lead to Improved Designs

At the drawing board, test findings shape new and improved filter designs for even greater engine protection. This never-ending project of research, testing and design at the Fram Institute guarantees you the finest filter products possible.

SEPTEMBER 1956 |



# Popular Science Monthly

.....

**September, 1956**



*This stunning entry divider is just one of a whole raft of easy-to-build projects to brighten your home inside and out.*



*Little \$1,495 VW challenges \$10,000 Continental's time from Chicago to New York*

## **MAKE YOUR HOME A SHOW PLACE: SPECIAL "HOW-TO" SECTION**

- [Building a Modern Stairway · 100](#)
- [A Garden Shelter to Store Your Tools · 104](#)
- [Vanity Dresser for a Teen-Age Girl · 107](#)
- [Entry Divider Helps Welcome Guests · 108](#)
- [Bathroom Rack Is a Divider, Too · 110](#)
- [Pull-Out Pan Rack for Your Kitchen · 112](#)
- [Plate Rack Hides Card Table · 113](#)
- [Phone Built-In for Hall or Corner · 114](#)
- [How to Make a Handsome Bookcase · 116](#)
- [Modern Furniture That You Can Build · 118](#)

## **AUTOMOBILE NEWS**

- [New Weapons in War to Cut Car Deaths · 121](#)
- [Russia's Light Car: The Red "Squirrel" · 142](#)
- [Volkswagen: 858 Miles on 29 Gallons · 144](#)
- [How Fast Are You Really Going? · 150](#)
- [How to Foil the Auto-Repair Crooks · 185](#)

## **WORLD OF SCIENCE AND INDUSTRY**

- [Radar Builders Outfox the Arctic · 128](#)
- [New Supertankers Outgrow Harbors · 134](#)
- [Electrical Wonders Work Home Magic · 158](#)
- [Things You Never Knew About Your Pen · 164](#)
- [Inside Our First Big A-Power Plant · 180](#)

**Managing Editor**  
HOWARD ALLAWAY

**Art Editor**  
HOWARD C. JENSEN

**Associate Editors**  
Alden P. Armagnac, Devon Francis,  
Martin Mann, Herbert O. Johansen,  
Sheldon M. Gallagher,  
Henry B. Comstock,  
Herbert R. Pfister, Frank Dorr,  
Ruth Westphal

**Art**  
Harry Samuels (Director),  
Herbert Anthony, Gene Butera,  
Eric A. Karminski Jr., Henry W.  
Kazmirowski, Dana B. Rasmussen

**Copy**  
Kendall W. Goodwyn (Director),  
Everett H. Ortner, Maryann  
Smith, Georgette Sparks

**Photography**  
W. W. Morris (Director),  
Hubert Lockett, Orlando Guerra

**Assistant Managing Editors**  
Frank Rowsome Jr.  
Robert P. Stevenson  
**Mechanics and Handicraft**  
Harry Walton  
**Pacific Coast Editor**  
Wesley S. Griswold (Los Angeles)  
**Midwestern Editor**  
Joseph Doriaque (Chicago)  
**Editorial Assistants**  
Rosa Lee Beeland (Chief),  
Louise Levis, Bebe Lipson,  
Roberta Marks



# America's Leading New-Idea Magazine for 84 Years

## PICTURES AND FEATURES

[What's Coming Next? • 126](#)

[Can Nike Knock Down Red Bombers? • 152](#)

[Radio Fisherman Trolls From Shore • 156](#)

[Doctors Endorse This Comic Strip • 172](#)

[Gus Defends a Woman Driver • 190](#)

[His Shop Is a Firehouse • 213](#)



*One hobby led to another for dairy farmer Carl Daniels. Now he rides herd on a dozen.*

## FOR THE HOME MECHANIC

[The Gun That Protects Your Home • 193](#)

[7 Uses for Welding Rods • 198](#)

[How to Build Good Sawhorses • 201](#)

[Twin Bikes Carry the Whole Family • 204](#)

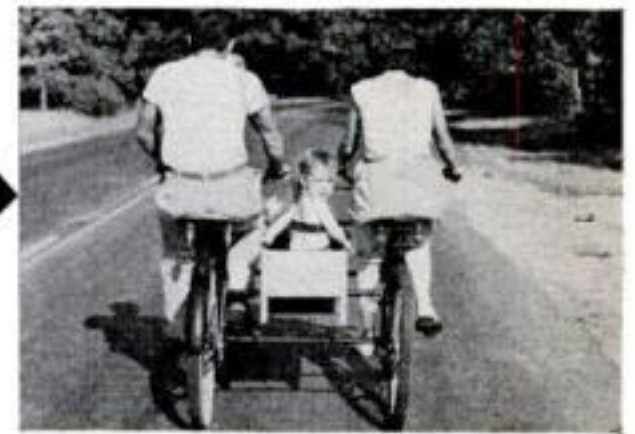
[Domestic Troubles of a TV Repairman • 206](#)

[Elevator Makes Ceiling a One-Man Job • 210](#)

[Gardeners Ride Mowers Like Bicycles • 217](#)

[How to Build a Transistor Door Phone • 220](#)

[Two New Saws Perform New Tricks • 227](#)



*Papa-plus-Mama power propels a bicycle built for four.*

## WHAT'S NEW IN . . .

[Ideas from the Inventors • 169](#)

[Aviation • 176](#)

[Aids to Modern Living • 188](#)

[Handyman Products • 199](#)

[Tools for Your Shop • 212](#)

[Car Accessories • 224](#)

[Shop Ideas • 234](#)

## EVERY MONTH . . .

[PS Readers Talk Back • 4](#)

[PS Late News • 92](#)

[Prize Projects by PS Readers • 94](#)

[I'd Like to See Them Make • 96](#)

[Wordless Workshop • 218](#)

[Hints from the Model Garage • 225](#)

[Keeping the Home Shipshape • 231](#)

### Publisher

GODFREY HAMMOND

### President

RALPH H. FLYNN

### Advertising Manager

LEE P. ADAMS

### Circulation Director

EUGENE WATSON

### EDITORIAL OFFICES:

353 Fourth Ave., New York 10, N. Y.

### ADVERTISING OFFICES:

NEW YORK—353 Fourth Ave.

CHICAGO—360 North Michigan Ave.

DETROIT—820 Book Bldg.

SAN FRANCISCO—114 Sansome St.

CLEVELAND—636 B. F. Keith Bldg.

LOS ANGELES—1127 Wilshire Blvd.

PORTLAND, ORE.—520 S.W. Sixth Ave.

Published monthly at 353 Fourth Avenue, New York 10, N. Y., by Popular Science Publishing Co., Inc., Godfrey Hammond, Chairman of the Board; Ralph H. Flynn, President and Treasurer; Franklin E. Parker Jr., Secretary; Eugene Watson, Vice-President. Second-class mail privileges authorized at New York, N. Y., and Day-

ton, Ohio. Entered as second-class matter at the Post Office Department, Canada. Printed in U.S.A. Copyright, 1956, by Popular Science Publishing Co., Inc. All rights reserved in the United States, Great Britain, and in all the countries participating in the International Copyright Convention and Pan-American Copyright Convention. Single copy 35¢. Subscriptions to United States, its possessions, and Canada, 1 year \$3.40 (2 years \$6.00, 3 years \$8.00). Elsewhere, 1 year \$6.00 (2 years \$11.00, 3 years \$16.00). Four weeks' notice is needed to change a subscriber's address. Please give both old and new addresses, including postal zone numbers.



### Applause for Tesla Story

The editors of *POPULAR SCIENCE* are to be sincerely complimented on their treatment of the life of Nikola Tesla which appeared in the July issue (p. 81). Pictures (and likewise picture narratives) on Tesla have not been easy for the interested reader and student to find; and so, judged from a very practical point of view, this article may rightfully be considered one of the outstanding contributions to periodical literature for the Tesla centennial anniversary.

LELAND I. ANDERSON, Director  
The Tesla Society, Minneapolis

### Life in a Space City

If the gravity wheel in that city in space (May, p. 92) rotated at a constant velocity, a family living in one part of the wheel would have a lighter sensation of weight than their neighbors living farther from the hub. Wouldn't this make life rather confusing?

WILLIAM DAY, Marblehead, Mass.

*It sure would. Centrifugal force would tend to throw people outward, away from the gravity wheel's hub, and residents would live with their heads pointed toward the hub. The closer to the hub, the smaller the pull, until finally, at dead center, even the fattest lady in the space city would be weightless.*

### Nice-Riding Rod

Here is a picture of the outboard hot rod that I built from your March plans. It was a



very easy boat to make, and it really rides nice. I hope to win a few races with it this season.

GEORGE R. HUFF JR., Rockwell City, Iowa

### A Fly-Sprayer Touches Up His Car

Your article in July on "Quick Touch-ups Keep Your Car Looking New" (p. 159) mentioned using a spray gun for older cars when you are unable to get a pressurized can of paint.

For some time now I have been using an ordinary fly-sprayer purchased for 20 cents.



I thin the paint same as for my big sprayer. Then I pump the handle steady and get a finish as good as any professional job. Works just as well with primer, too.

PHILIP EYLES, Niagara Falls, Canada

### First Steam Cats

Your June article on the *Forrestal's* steam slingshots (p. 124) is very interesting, but the first U.S. carrier to sport them was the *Hancock*. We installed two up here at the Bremerton yard.

As to the angled deck, the *Antietam* had an experimental angled deck installed in December, 1952.

VINCENT PESCE, Seattle

The *Hancock* is the first U.S. carrier with steam catapults. She has had steam cats since 1953. The second to get steam cats was the *Intrepid*, in 1954. The third was the *Ticonderoga*.

Even though the *Hancock* was the first, the *Intrepid* claims a first, too. The *Han-*





Don't drive a sluggish car...

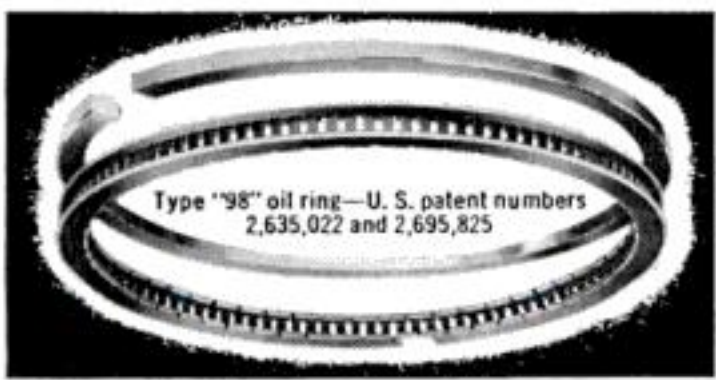
# GO with that "new car feel..."

Your car CAN be a joy to drive! Bring back that grand "new-car feel" with an alert, responsive engine—see your Doctor of Motors for a power-restoring overhaul with Perfect Circle 2-in-1 Chrome piston rings.

In PC's 2-in-1 Chrome set,\* the top compression ring was specially designed to perform where pressures are greatest, heat is highest, and lubrication is poorest. The new Type "98" oil ring with self-expand-

ing spacer assures a uniform pressure against the cylinder wall, plus a side sealing action on the ring groove. Both rings are plated with thick, solid chrome that resists wear, more than doubles the life of cylinders, pistons and rings.

For full-powered performance with positive oil control, Doctors of Motors everywhere install and recommend Perfect Circle 2-in-1 Chrome piston rings—a sure way to bring back that "new-car feel."



*Better Mechanics everywhere install*

**2-in-1 Chrome piston rings...The Standard of Comparison**

Perfect Circle Corporation, Hagerstown, Ind.; The Perfect Circle Co., Ltd., Don Mills, Ont.



# "CRESTOGRIP"

## The New Utility Plier



Crescent's No. P210 Utility Plier is completely new... revolutionary! Not a "slip-joint" plier, not to be confused with conventional lap-joint "pump" pliers. Its double-strong box joint design is absolutely unique. It will grip flat, square, hex or round objects with powerful leverage. Handsomely finished in rust-resistant zinc plate.



QUICK, POSITIVE ADJUSTMENT

This cut-away view shows joint construction with its extra generous bearing surface at the arrow point.

**\$300**

Sold by hardware stores everywhere.

**CRESCENT TOOLS**

*Give Wings to Work*

*Sign of the Artisan  
Symbol of Excellence*



Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by

**CRESCENT TOOL COMPANY, JAMESTOWN, N. Y.**

cock's were built in Great Britain, while the *Intrepid's* were the first American-built set.

DENNIS J. BENJAMIN, ET2

J. D. McFARLAN, AG3

USS *Intrepid* CVA 11

### Table for Midgets?

Who's that patio table in the June issue for—midgets? I cut the 14' length into four 36" pieces as the book said, and had 2' of waste. When I cut the ends at 50°, I had



table legs so short there's no leg room under the top for us humans.

GEORGE R. SHULZE, Hopkins, Minn.

The text should have said "Cut four 36" pieces at a 50° angle," instead of "Cut four 36" pieces . . . and trim to a 50° angle," which of course leaves them far short of 36".

### Family? Sports?

I object to the use of "family sports car" in your article in the July issue about the Plymouth Fury ("Family Sports Car Blends Style and Zip," p. 74). Admittedly the Fury is a very hot car and handles very well but it is definitely *not* a sports car.

ROBERT NORTON, Placerville, Calif.

. . . What do you mean, *family* car? When I take my brood out for a Sunday drive, I don't have to get up to 60 m.p.h. in 10 seconds or pass every car on the road. When Detroit makes cars again like my '51 Dodge, they can talk of "family" cars.

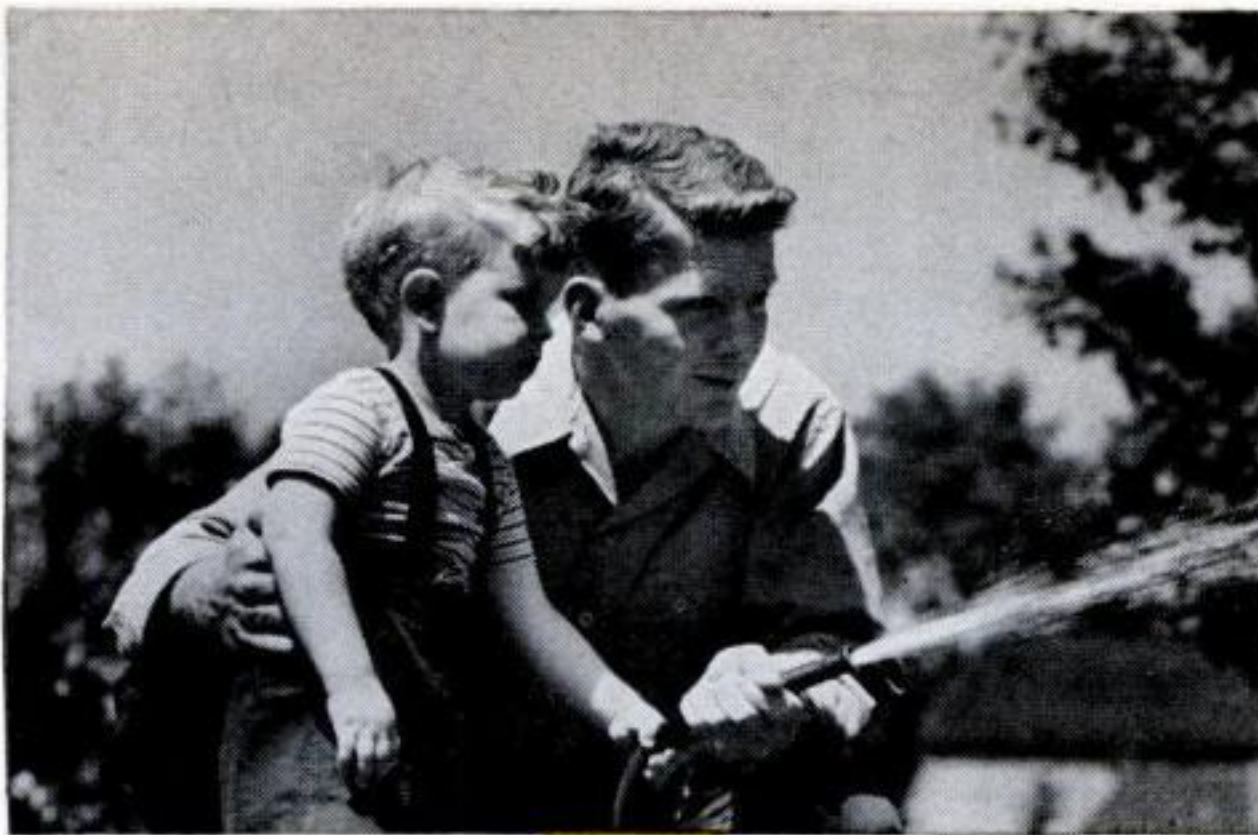
K. WIRT, Freeport, N. Y.

### That Rolling Tombstone Ball

Once I saw a similar case to your tombstone ball that had rotated on its base (July PSM, p. 224).

My father-in-law had a logical explanation: On winter days, when the temperature fluctuates from above freezing to below, water from rain or melting snow seeps into the cup under the ball. When this freezes





# This man is a "security risk"!

Age, 29. Married. Two children. High school education. Active in local lodge, church, veterans' organization. Employed by large manufacturing concern. Earns \$82 a week.

SOUNDS like an Average Joe. And he is. Too average! He's got a job. It pays fairly well. He's satisfied.

But here's the catch. With the right kind of training, this young

man could be stepping into better jobs. He could be making \$7-8000 a year. He could be cashing in on those spare-time hours he now wastes.

As it stands now, he's stuck in his job. Can't seem to make any headway. He's reluctant to try. So he just hangs on.

This man is a "Security Risk" to his wife and children.

His family probably will never enjoy the comforts, the prestige, the good living that could be theirs. If hard times come, they are almost sure to be hurt. For an Average Joe can't expect to compete with trained men when the chips are down.

A man like this would do well to start a planned program of self-improvement. In his spare time. In a field related to his interests and abilities. Right NOW!

One good way to start—a way proved by hundreds of thousands of once-Average Joes who are making good today—is to enroll for special training with a recognized correspondence school. One like I. C. S., the oldest and largest in the world.

Don't you be a "Security Risk." Mail the coupon for full, free details while there is still time.

For Real Job Security—Get an I. C. S. Diploma!

I. C. S., Scranton 9, Penna.

Member, National Home Study Council

## INTERNATIONAL CORRESPONDENCE SCHOOLS

65<sup>TH</sup> YEAR

BOX 93641J, SCRANTON 9, PENNA.

(Partial list of 256 courses)

Without cost or obligation, send me "HOW to SUCCEED" and the opportunity booklet about the field BEFORE which I have marked X (plus sample lesson):

**ARCHITECTURE and BUILDING CONSTRUCTION**  
☐ Air Conditioning—Refrig.  
☐ Architecture  
☐ Architectural Interiors  
☐ Building Contractor  
☐ Building Estimator  
☐ Building Maintenance  
☐ Carpentry and Mill Work  
☐ Heating  
☐ Painting Contractor  
☐ Plumbing  
☐ Reading Arch. Blueprints

**ART**  
☐ Cartooning  
☐ Commercial Art  
☐ Fashion Illustrating  
☐ Magazine Illustrating  
☐ Show Card and Sign Lettering  
☐ Sketching and Painting

**AUTOMOTIVE**  
☐ Auto Body Rebuilding  
☐ Auto Elec. Technician  
☐ Auto-Engine Tune Up  
☐ Automobile Mechanic

**AVIATION**  
☐ Aeronautical Engineering Jr.  
☐ Aircraft & Engine Mechanic  
**BUSINESS**  
☐ Advertising  
☐ Bookkeeping and Accounting  
☐ Business Administration  
☐ Business Correspondence  
☐ Public Accounting  
☐ Creative Salesmanship  
☐ Federal Tax  
☐ Letter-writing Improvement  
☐ Office Management  
☐ Professional Secretary  
☐ Retail Business Management  
☐ Sales Management  
☐ Stenographic-Secretarial  
☐ Traffic Management

**CHEMISTRY**  
☐ Analytical Chemistry  
☐ Chemical Engineering  
☐ Chem. Lab. Technician  
☐ General Chemistry  
☐ Natural Gas Prod. & Trans.  
☐ Petroleum Engineering  
☐ Plastics  
☐ Pulp and Paper Making

**CIVIL, STRUCTURAL ENGINEERING**  
☐ Civil Engineering  
☐ Construction Engineering  
☐ Highway Engineering  
☐ Reading Struct. Blueprints  
☐ Sanitary Engineering  
☐ Structural Engineering  
☐ Surveying and Mapping

**DRAFTING**  
☐ Aircraft Drafting  
☐ Architectural Drafting  
☐ Electrical Drafting  
☐ Mechanical Drafting  
☐ Mine Surveying and Mapping  
☐ Plumbing Drawing and Estimating  
☐ Structural Drafting

**ELECTRICAL**  
☐ Electrical Engineering  
☐ Electrical Maintenance  
☐ Electrician ☐ Contracting  
☐ Lineman

**HIGH SCHOOL**  
☐ Commercial ☐ Good English  
☐ High School Subjects  
☐ Mathematics

**LEADERSHIP**  
☐ Foremanship  
☐ Industrial Supervision  
☐ Leadership and Organization  
☐ Personnel-Labor Relations

**MECHANICAL AND SHOP**  
☐ Gas—Electric Welding  
☐ Heat Treatment ☐ Metallurgy  
☐ Industrial Engineering  
☐ Industrial Instrumentation  
☐ Industrial Supervision  
☐ Internal Combustion Engines  
☐ Machine Design-Drafting  
☐ Machine Shop Inspection  
☐ Machine Shop Practice  
☐ Mechanical Engineering  
☐ Quality Control  
☐ Reading Shop Blueprints  
☐ Refrigeration  
☐ Sheet Metal Worker  
☐ Tool Design ☐ Toolmaking

**RADIO, TELEVISION**  
☐ Industrial Electronics  
☐ Practical Radio TV Eng'ng  
☐ Radio and TV Servicing  
☐ Radio Operating

☐ Television Technician  
**RAILROAD**  
☐ Air Brake Equipment  
☐ Car Inspector  
☐ Diesel Engineer & Fireman  
☐ Section Foreman  
**STEAM AND DIESEL POWER**  
☐ Combustion Engineering  
☐ Diesel—Elec. ☐ Diesel Eng's  
☐ Electric Light and Power  
☐ Stationary Fireman  
☐ Stationary Steam Engineering  
**TEXTILE**  
☐ Carding and Spinning  
☐ Cotton, Rayon, Woolen Mfg.  
☐ Finishing and Dyeing  
☐ Loom Fix'g ☐ Textile Des'ing  
☐ Textile Eng'g ☐ Throwing  
☐ Warping and Weaving  
**MISCELLANEOUS**  
☐ Domestic Refrigeration  
☐ Marine Engineering  
☐ Ocean Navigation  
☐ Professional Engineering  
☐ Short Story Writing  
☐ Telephony

Name \_\_\_\_\_ Age \_\_\_\_\_ Home Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_ Working Hours \_\_\_\_\_ A.M. to P.M. \_\_\_\_\_

Occupation \_\_\_\_\_

Canadian residents send coupon to International Correspondence Schools, Canadian, Ltd., Montreal, Canada. . . . Special tuition rates to members of the U. S. Armed Forces.



it expands and raises the ball slightly. Next the sun warms the ball on one side, melting the ice there, and causing the ball to settle down on that side, rocking slightly on the fulcrum of unmelted ice on the other side.

R. W. BRETTHAUER, Riverton, N. J.

... As the sun's rays strike it, the granite of both base and ball expand very slightly on one side. This one-sided bulging would rotate the ball away from the sun.

R. W. DYKEMAN, Chicago, Ill.

### QWERTYUIOP Wins

Whatever happened with that new typewriter-key arrangement—the one that substituted PYFGCRL for QWERTYUIOP (PSM, Apr., p. 132)? Is the Government adopting it?

R. C. McKEEVER, New York

... I'm in favor of any system that'll keep my secretary from typing my name "Arhtur Smiht" instead of

ARTHUR SMITH, Philadelphia

*Latest word is that the Government has turned down the Dvorak typing system. Typists using the new keyboard, says the*

*General Services Administration, typed less accurately than those using standard keyboards, and it took at least 100 hours to train them in its use.*

### Traveling Shower

Your camping-equipment article in the June issue (p. 79) reminded me of something I've found very handy. I took an old gasoline tank, washed it out well, and mounted it on the roof carrier of my station wagon. A pipe adapter screwed in the outlet lets me connect 25 feet of garden hose to it.

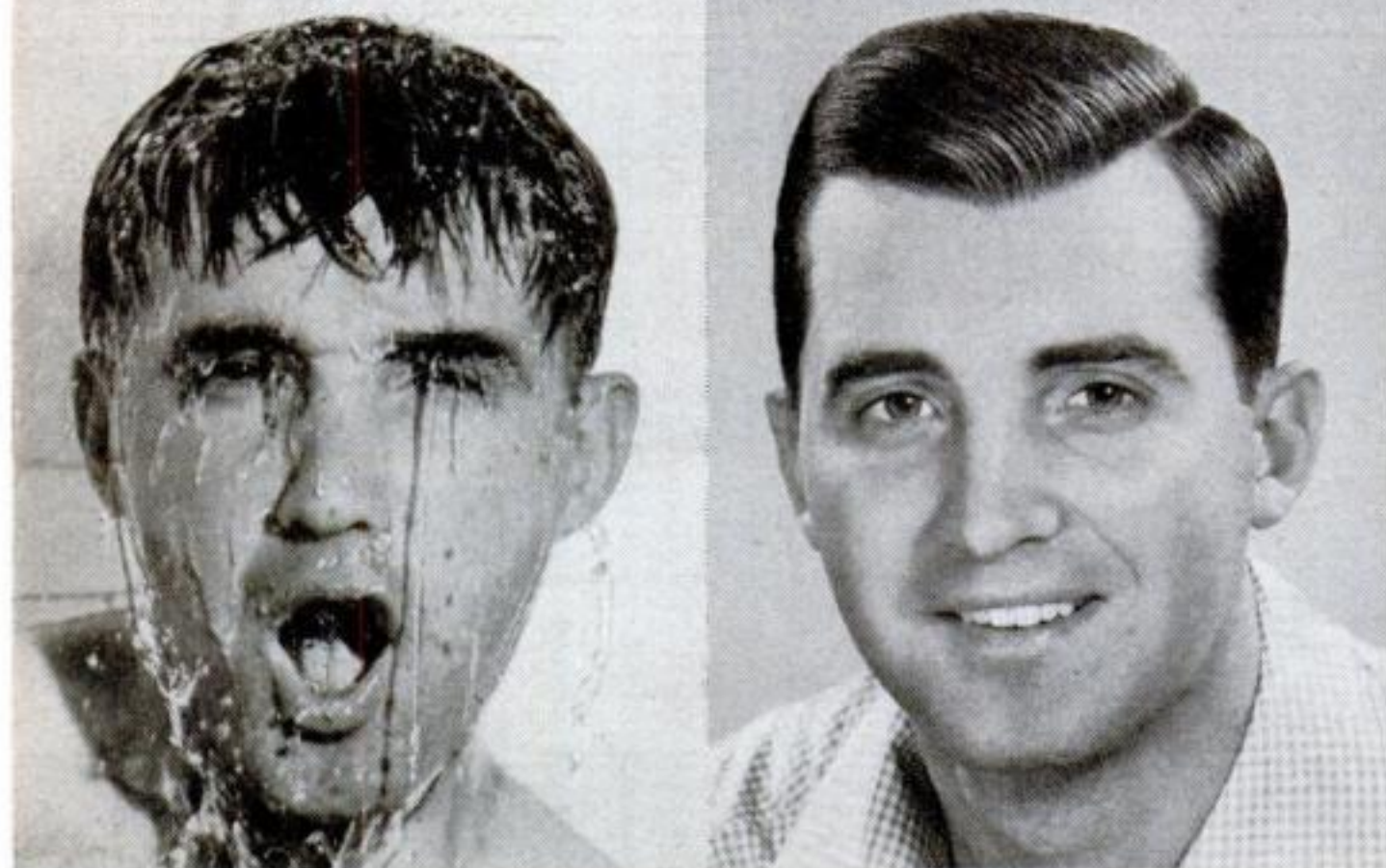


On trips, I fill the tank with water every morning. If the wagon is in the sun, soon the water is warm enough for washing.

ROBERT C. WAGNITZ, Northfield, Ohio

## New greaseless way to keep your hair neat all day

Billy Pierce took a shower... then he used Vitalis



White Sox lefthander Billy Pierce rarely goes to the shower before the game ends.

## New VITALIS® Hair Tonic with V-7®

ANOTHER FINE PRODUCT OF BRISTOL-MYERS



Want the pitch on a greaseless hair tonic?

New Vitalis keeps hair in place and prevents dryness with V-7, the greaseless grooming discovery. You never have an over-slick, plastered-down look. Try it. You'll like it.





To the man who wants  
an **ACCOUNTANT'S**



to enjoy  
**CAREER**



**BANK ACCOUNT**

**FREE SAMPLE LESSON**

**IF** you're that man, here's something that will interest you.

Not a magic formula—not a get-rich-quick scheme—but something more substantial, more practical.

Of course, you need something more than just the desire to be an accountant. You've got to pay the price—be willing to study earnestly, thoroughly.

Still, wouldn't it be worth your while to sacrifice some of your leisure in favor of interesting home study—over a comparatively brief period? Always provided that the rewards were good—a salary of \$4,000 to \$10,000 and up?

An accountant's duties are interesting, varied and of real worth to his employers. He has *standing*!

Do you feel that such things aren't for you? Well, don't be too sure. Very possibly they *can* be!

Why not, like so many before you, investigate LaSalle's modern Problem Method of training for an Accounting position?

Just suppose you were permitted to work in an accounting firm under the personal supervision of an expert accountant. Suppose, with his aid, you studied accounting principles and solved problems day by day—easy ones at first—then more difficult ones. If you could do this—and could turn to him for advice as the problems became complex—soon you'd master them all.

That's the training you follow in principle under the LaSalle Problem Method.

You cover accounting from Basic Accounting right through Accounting Systems and Income Tax Procedure. As you go along, you absorb the principles of General Accounting, Auditing and Basic Cost Accounting. Then you may choose Commercial Accounting, Industrial Accounting or Public Accounting and prepare for the C. P. A. examinations.

Your progress is as speedy as you care to make it—depending on your own eagerness to learn and the time you spend in study.

Will recognition come? The only answer, as you know, is that success *does* come to the man who is really *trained*. It's possible your employers will notice your improvement in a very few weeks or months. Indeed, many LaSalle graduates have paid for their training—with increased earnings—before they have completed it! For accountants, who are trained in organization and management, are the executives of the future.

**Get Free Sample Lesson—Also**

**"Accountancy, The Profession That Pays"**

For your own good get all the facts about this completely new and modern accounting training. Write for Free Sample Lesson—also latest book "Accountancy, The Profession That Pays." They will prove that Accounting offers brilliant futures to those who aren't afraid of serious home study, and will show the wide range of opportunities that exist today. No cost or obligation. If you want a position of higher income, greater prestige and professional standing... **MAIL THE COUPON NOW!**

**Over 4,200 Certified  
Public Accountants among  
LaSalle alumni**

Member, National Home Study Council

## LASALLE EXTENSION UNIVERSITY A CORRESPONDENCE INSTITUTION

417 S. Dearborn St. Dept. 983H Chicago 5, Ill.

I want to be an accountant. Send me without obligation, Free Sample Lesson—also "Accountancy, The Profession that Pays."

Name.....Age.....

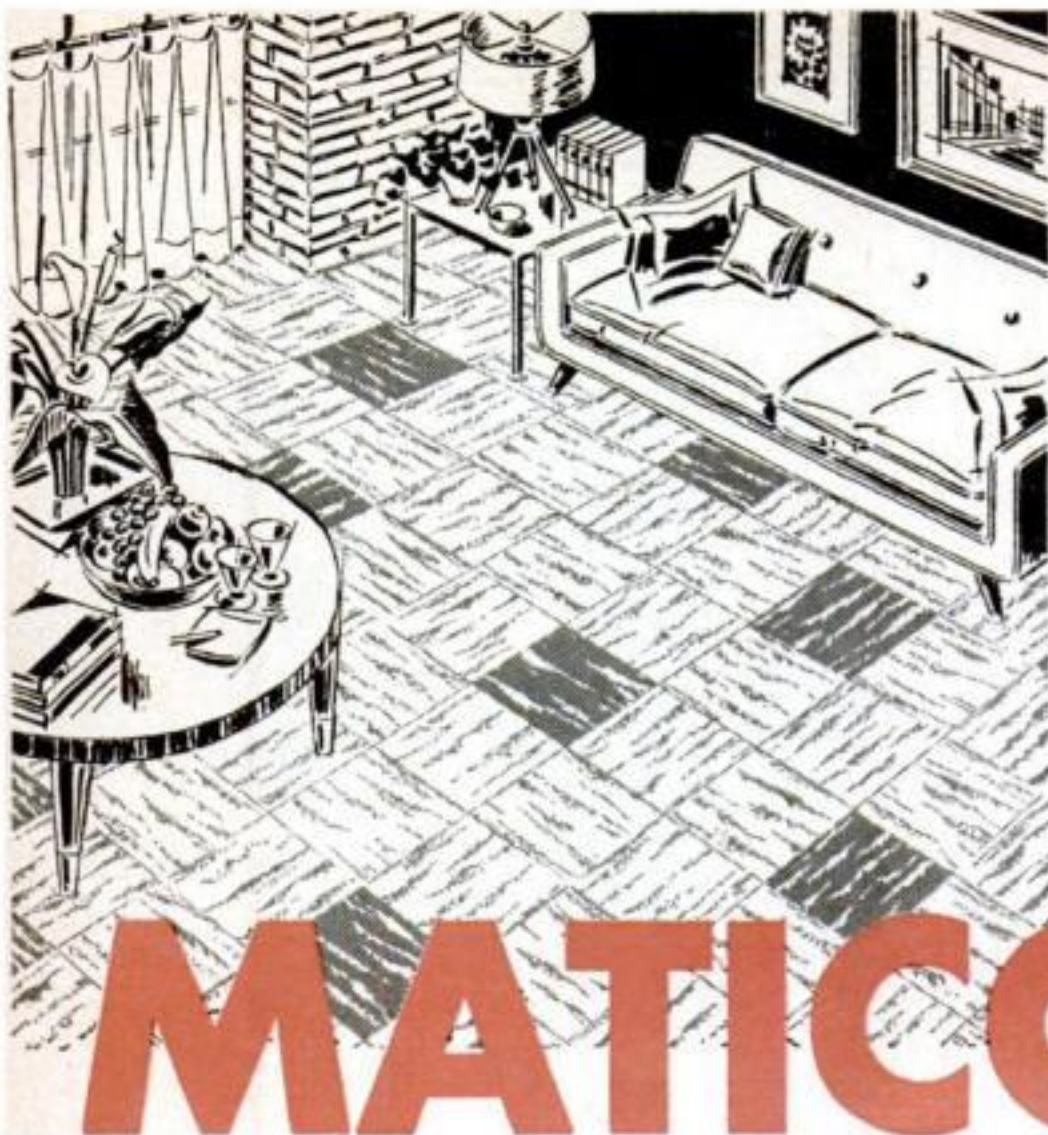
Address.....

City, Zone & State.....



SEPTEMBER 1956 9





*Replace your  
worn-out  
floors with*  
**BEAUTIFUL,  
ECONOMICAL**

# MATICO **TILE FLOORING**

## DO-IT-YOURSELF IN JUST A FEW HOURS

Yes, you can install your own smart, easy-to-clean MATICO Tile Floor . . . free your wife from floor drudgery . . . in just a few hours. It's easy with MATICO's big, new illustrated instruction book to show you how. And you couldn't choose a more economical, durable, colorful flooring. MATICO comes in popular marbled colors, Confetti dots-of-color patterns and smart wood tones in asphalt and vinyl-asbestos tile.

## CUT COSTS TOO

Save money? You bet. You save plenty by installing your own floor . . . and MATICO saves on upkeep, too, because it requires less care, lasts for years. Ask your MATICO dealer for full details today. He's listed under "floors" in the classified telephone directory. Or mail coupon for your free instruction book.



**FREE**

INSTRUCTION  
BOOK SHOWS  
YOU HOW

**MAIL COUPON  
TODAY!**



Mastic Tile Corp. of America  
Dept. S3-9, Newburgh, N. Y.

Please send me full details on MATICO Tile Flooring and FREE install-it-yourself instruction book.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

EC 347

## MASTIC TILE CORPORATION OF AMERICA

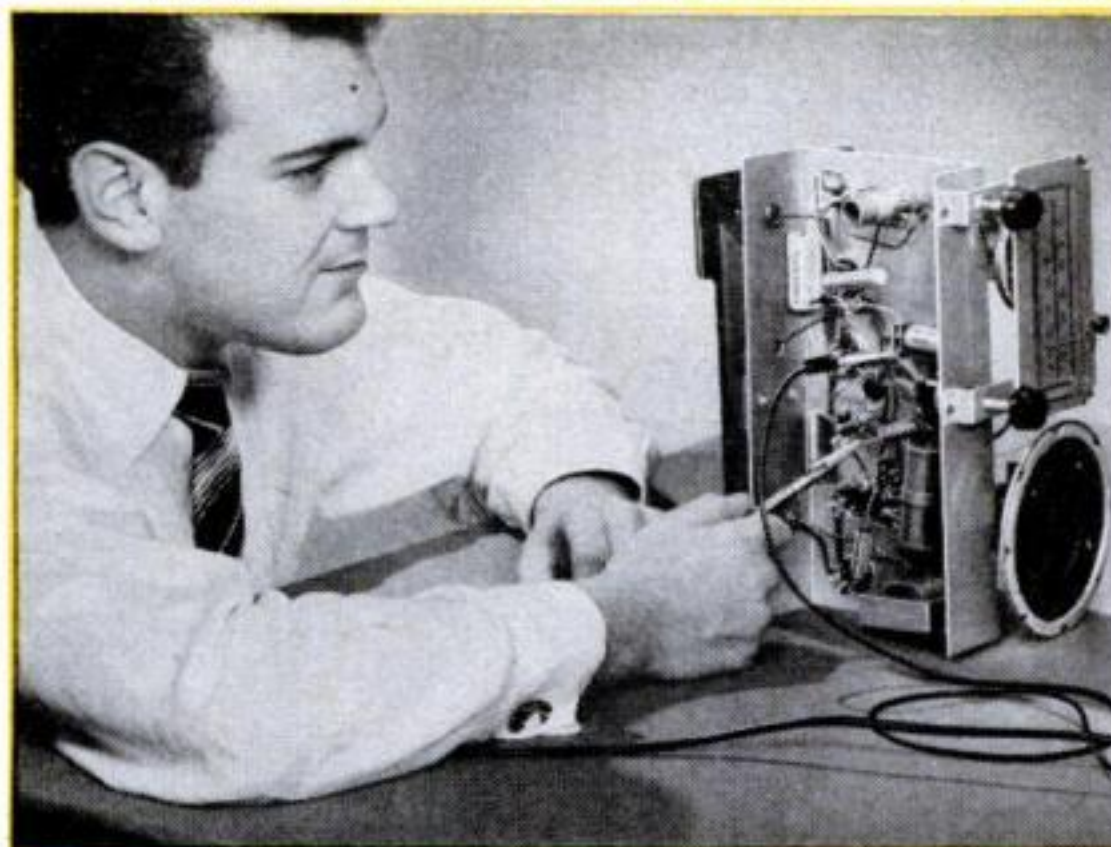
Houston, Tex. • Joliet, Ill.  
Long Beach, Calif. • Newburgh, N. Y.

Rubber • Vinyl • Asphalt Tile • Confetti • Aristoflex  
Parquetry • Maticork • Cork Tile • Plastic Wall Tile





# For a Successful Career in Radio-Television



Train at Home  
in Spare Time  
with N. R. I.  
**OLDEST and  
LARGEST**  
Home Study Radio-Television School

## N.R.I. Trained These Men

### ENGINEER STATION WHPE

"Thanks to NRI, I operated a successful Radio repair shop. Now I am an engineer for WHPE." VAN W. WORKMAN, HIGH POINT, N.C.



## Prosperous Fast Growing Industry Offers You GOOD PAY-BRIGHT FUTURE-SUCCESS

It's the trained man who gets ahead—gets the better job, drives a better car, lives in a better home, is respected for what he knows and can do. For a job with a future—find out how you can train at home for Radio-Television.

### TODAY'S OPPORTUNITY FIELD

Training PLUS OPPORTUNITY is the ideal combination for success. And today's OPPORTUNITY field is Radio-Television. Over 125 million home Radios plus 30 million sets in cars, plus 40 million TV sets means big money for trained Technicians. More than 4,000 Radio and TV broadcasting stations offer interesting and important positions. Color television, portable TV sets, Hi-Fi, assure future growth. Find out about NRI. Since 1914—for more than 40 years—NRI has been training ambitious men at home in spare time for Radio-TV. With NRI 50-50 method, you study basic principles AND learn by practicing with actual equipment NRI furnishes. You learn with your hands and your head. You get dependable training, backed up by the reputation of the oldest and largest home study Radio-TV school.

### ADDED INCOME SOON. \$10-\$15 A WEEK IN SPARE TIME

Soon after enrolling many start earning extra money fixing sets. Many open their own full time Radio-TV shops after getting NRI Diploma. MAIL COUPON. Get FREE Sample Lesson and 64-page Catalog showing equipment supplied, outlines of courses, opportunities in Radio-TV. Price is low—terms easy. Address:

NRI, Dept. 6JB, Washington 9, D.C.



### QUICK SPARE TIME CASH

"Knew nothing about Radio-TV when I enrolled. After 15 lessons started repairing sets. My future looks bright." DONALD B. ACKERMAN, MINNEAPOLIS, MINN.

### HAS OWN TV BUSINESS

"Quit my job to do Television work full time. I love it and do all right financially." WILLIAM F. KLINE, CINCINNATI, OHIO



## You Learn Servicing-Broadcasting at Home—By Practicing with Kits N.R.I. Sends



Nothing takes the place of practical experience. That's why NRI training is Learning-by-Doing. With Servicing Course you build Radio shown at top and other equipment. With Communications Course you build Transmitter at left and other equipment. Catalog pictures all equipment you get.

Available To  
**VETERANS**  
Under G.I. Bills



## SAMPLE LESSON AND CATALOG **FREE**

## MAIL COUPON TODAY

National Radio Institute  
Dept. 6JB, Washington 9, D. C.

Mail me Sample Lesson and 64-Page Catalog FREE. (No salesman will call. Please write plainly.)

Name \_\_\_\_\_ Age \_\_\_\_\_

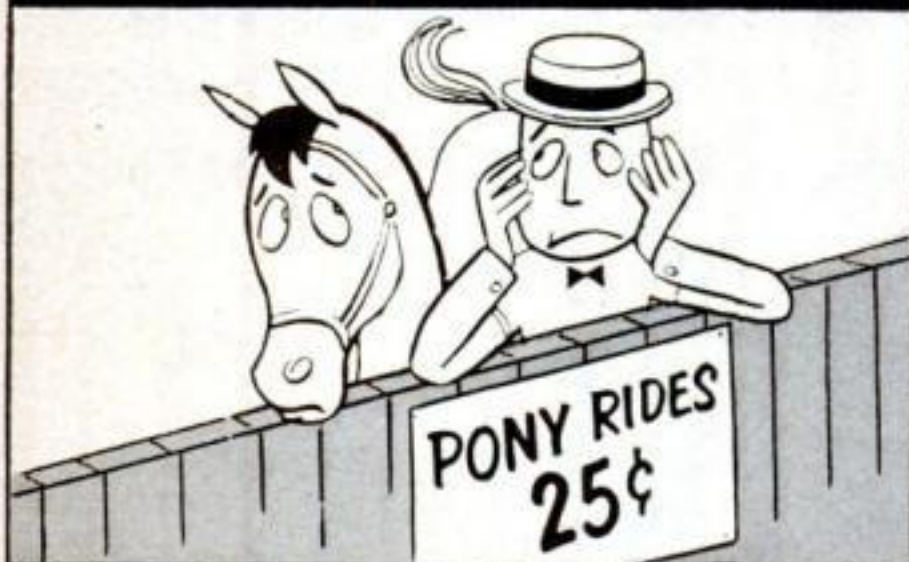
Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

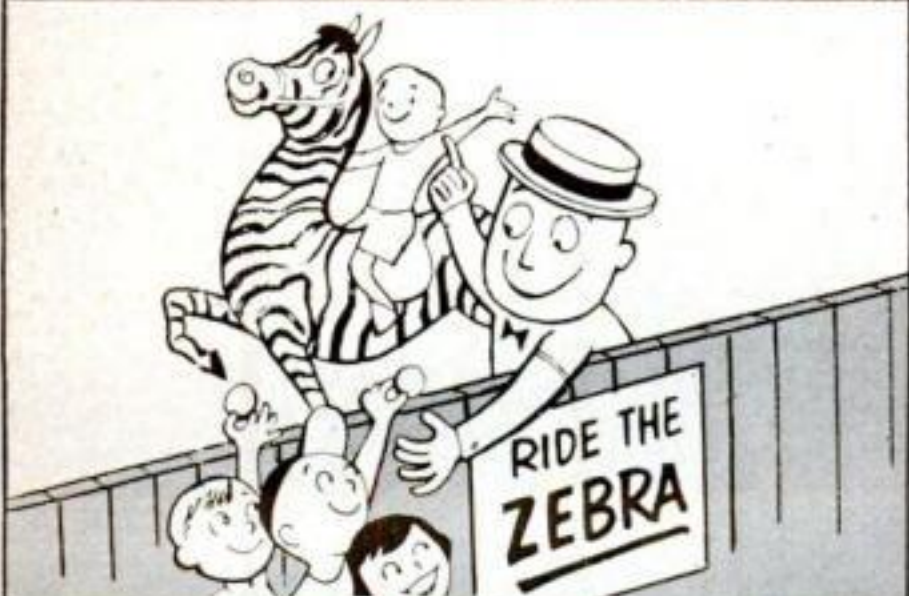
Approved Member National Home Study Council



# Looking for Something?



## PAINTERS



## FROM PAINTERS TO SIGNS WHATEVER YOU NEED

Find It Fast  
In The  
'Yellow Pages'



Ads with this symbol make your shopping easier

# Speedy Sprayer

## mobile paint sprayer



### FREE!

Write for  
"How to Spray"  
Booklet and  
Literature.

Choice of craftsmen for 35 years! Saves time, paint and money. Quickly gives flawless finish to walls, furniture, screens, fences and handiwork. Sprays all materials; ¼ H.P. motor. Diaphragm principle assures clean, oil-free air. Never needs lubrication. With gun, less motor. **No. 890 Speedy Sprayer . . . \$38.50**

Add wheels with Wheel Kit No. 909. Includes 6" wheels, handle, fittings. **\$6.95**



At dealers everywhere

**W. R. BROWN CORPORATION**  
2637 N. NORMANDY AVE., CHICAGO 35, ILLINOIS

## PERFECT LETTERING Quick-Easy-Inexpensive with STENSO Lettering Guides

### FOR EVERY SIGN-MAKING NEED

Easy as writing your name, with STENSO Lettering Guides of sturdy treated stencil board. Use over and over for perfect lettering.



**GOTHIC** No. 210... ½-¾-1-1½-and 1¾ inch letters and numbers . . . **\$1.50**

**ROMAN** No. 211... ½-¾-1-1½-and 2 inch letters and numbers . . . **\$1.50**

**Old English** No. 212... 1-1½ and 2½ inch letters and numbers . . . **\$1.50**

At stores selling school supplies, stationery, art materials, hobbies, or order below from...

**STENSO LETTERING CO.** Dept. 19  
1101 E. 25th St., Baltimore 18, Md.

Please send me:

.....Set #210-\$1.50 .....Set #211-\$1.50 .....Set #212-\$1.50

### LARGE SIZE STENSO LETTERING GUIDES

#93-3 inch letters, numbers, \$1.00 #96-6 inch letters numbers, \$3.25

#94-4 inch letters, numbers, \$1.75 #98-8 inch letters only, \$4.00

#95-5 inch letters, numbers, \$2.50 #112-12 inch letters only, \$7.50

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

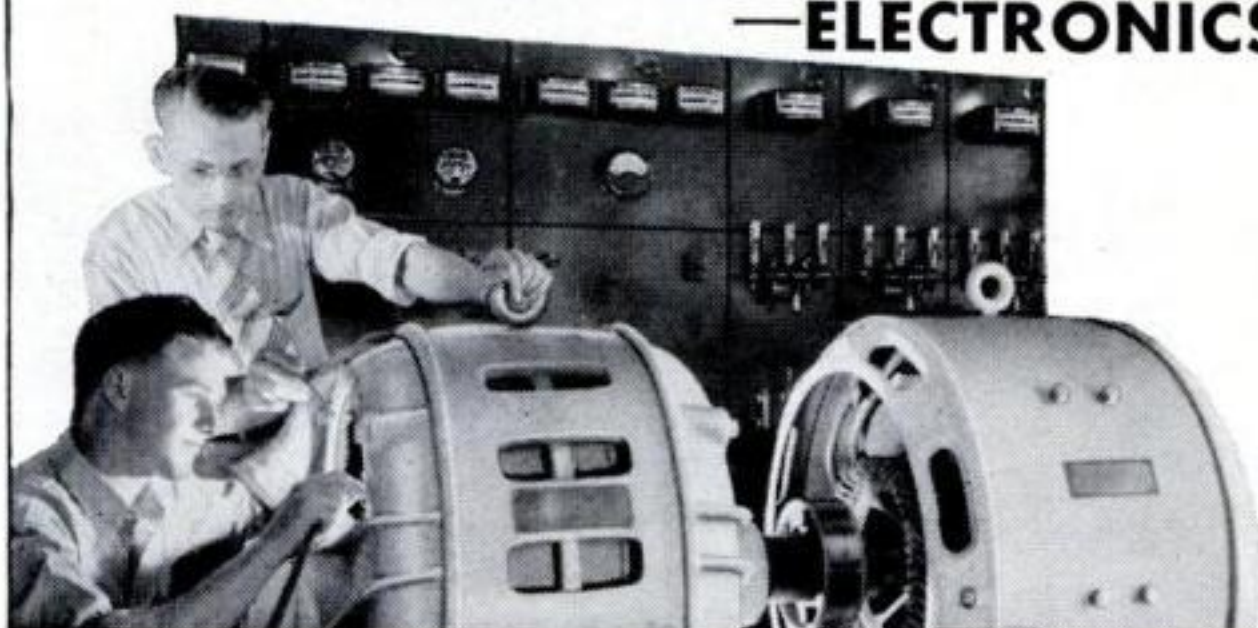
NO C. O. D.'S PLEASE!



# THESE MEN ARE GETTING PRACTICAL TRAINING IN **ELECTRICITY**

—ELECTRONICS

*On Real:*



**A.C. and D.C. MOTORS  
GENERATORS  
SWITCHBOARDS  
CONTROLLERS  
WIRING JOBS  
APPLIANCES  
ELECTRONIC UNITS**

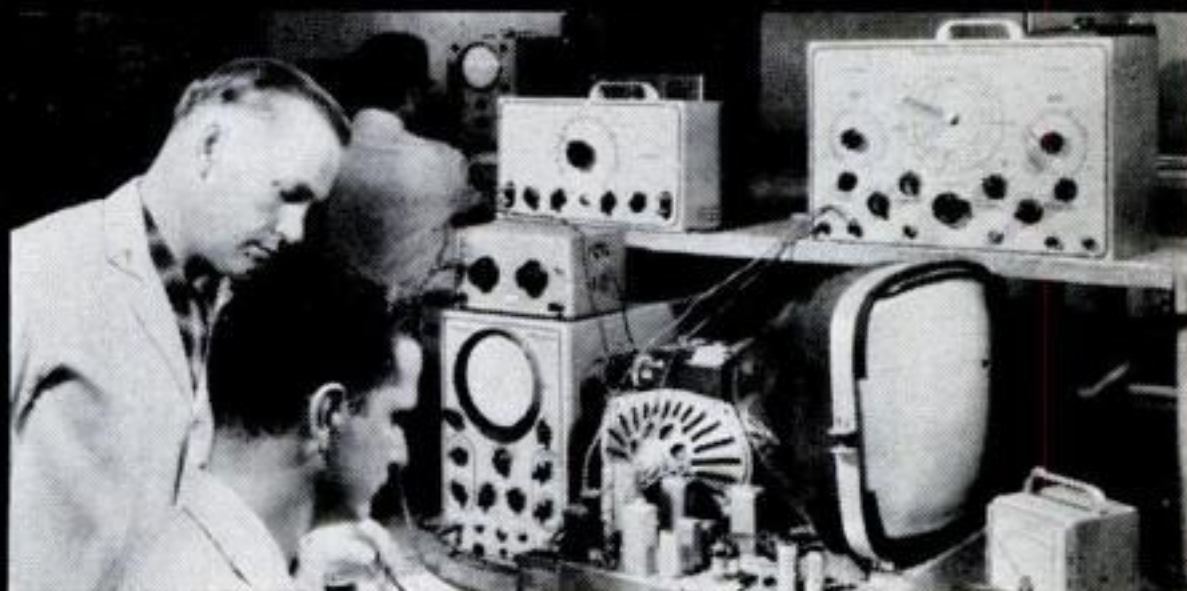
*(Shown at left—Instructor explaining operation and testing of a large Motor Generator in our A.C. Department.)*

# AND **TELEVISION-RADIO**

*On Real:*

**TELEVISION  
RECEIVING SETS  
Including Color TV  
AM and FM RADIO  
RECEIVERS including  
AUTO RADIOS  
TELEVISION TEST  
EQUIPMENT**

*(Right — Instructor helping students check the wiring and trace circuits of television receivers.)*



## Train in the great **SHOPS** of **COYNE**

**Largest, Oldest, Best Equipped School Of Its Kind In The U. S.**

Whether 17 or up to 45 years of age, prepare for your future now. Don't be satisfied with a "No Future" job. Train the Coyne way for a better job in a field that offers a world of opportunities in the years ahead.

**FINANCE PLAN** Enroll now, pay most of tuition later. Part-time employment help for students.

**WE TRAIN YOU IN CHICAGO** on real equipment. Trained instructors show you how, then you do practical jobs yourself. No previous experience or advanced education needed.

**CLIP COUPON NOW** for big new illustrated Coyne book "Guide to Careers in ELECTRICITY and TELEVISION-RADIO". No obligation; no salesman will call. Get vital facts now! *Training in Refrigeration and Electric Appliances can be Included.*



*Mail Coupon for  
Big Free Book*

**Training Offered  
to VETERANS  
and  
NON-VETERANS  
Alike**

**B. W. COOKE, President  
COYNE ELECTRICAL SCHOOL**

**500 S. Paulina St., Chicago 12, Ill. Dept. 66-73H**  
Send FREE book and details of all the training you offer. This does not obligate me and no salesman will call. I am especially interested in:

- ☐ **ELECTRICITY-ELECTRONICS**  
☐ **TELEVISION-RADIO**

NAME.....

ADDRESS.....

CITY.....STATE.....

**B. W. COOKE, Pres. COYNE FOUNDED 1899**

**ELECTRICAL SCHOOL**

**A TECHNICAL TRADE INSTITUTE OPERATED NOT FOR PROFIT**

**500 S. PAULINA STREET, CHICAGO, Dept. 66-73H**

**ELECTRICITY ★ RADIO ★ TELEVISION ★ REFRIGERATION ★ ELECTRONICS**



# You can't "LOUSE" it up



—if you use  
**deft wood finish**

The deftness is in the product. You'll get a perfect finish every time because:

- No matter how you apply it, Deft tightens down to a mirror-smooth film.
- Two coats give you a clear, lustrous semi-gloss finish.

The beauty of natural wood paneling, cabinets, furniture, floors, any interior wood project depends on the finish...and Deft is the one wood finish that is trouble-free and foolproof.

## Deft Makes Wood Finishing So Easy

Deft seals, primes and finishes, nothing else to use, no thinning. Deft dries in 30 minutes. You get a 3-coat BAR TOP finish in hours instead of days. No waxing or oiling needed. Deft does it all from start to FINISH. Deft will not darken with age.

- For the perfectionist; Deft may be steel woolled, rubbed, polished, etc. for a fine-furniture finish.

## Be GOOD to your WOOD ... Deft-finish it!

You'll swear by it, not at it, because you can't "louse" up the finish when you use Deft.

Wherever paints are sold, or  
write for free booklet.



DESMOND BROS.,  
1826 W. 54th St., Los Angeles 62, Calif.  
Please send me free Deft booklet.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ P.S. 6

## Koenig ALL-STEEL CABS for JEEPS FULL AND HALF CABS



★ PROTECTION — from weather and burglary.

★ SAFETY — All-steel, welded construction. No rivets. Safety glass used throughout.

★ COMFORT — Full air-spaced head lining and door lining. No vibration.

★ CONVENIENCE — Roll-down windows, full opening.

Available in full cabs (cover entire body), and half cabs (cover front passenger compartment).

## KING POWER WINCHES

For all Willys Jeeps, 4WD trucks and station wagons... also for Ford, Chevrolet, International and Dodge trucks.

Dependable pull power designed to fit specific pull and hoist needs. King power winches have pull capacities of 8,000 to 19,000 lbs.



Koenig Cabs and King Winches for Willys vehicles are available through Willys Motors, Inc., and Willys-Overland Export Corp. distributors or dealers. Write for descriptive literature.

**Koenig**

IRON WORKS, Inc.

Dept. S. 2214 Washington Ave.

HOUSTON 10, TEXAS

## A NEW Hobby . . Micromodeling

Make realistic, 3D miniature replicas of famous buildings, railroads, ships, planes. Printed on cards ready to cut and assemble. 100 different subjects. Hours of fun. Send 50¢ for sample, price list and booklet.



## Thayer & Storm

3909 W. 50th Street

Minneapolis 24, Minn.



instead of a job  
train for a career



Industrial growth . . . automation . . . technical advances create career opportunities for engineers, accountants, management experts. Share rewards awaiting college-trained men. Important firms visit campus regularly to employ Tri-State College graduates. Start any quarter in this world-famed college. Approved for veterans.

## Bach. of Science degree in 27 months

In Mechanical, Civil, Electrical, Chemical, Aeronautical, Radio (TV-Electronics) Engineering. In 36 Months a B.S. in Business Administration (General Business, Accounting, Motor Transport Management majors). Capable students may accelerate. 36-weeks course in Drafting. Intensive program: technical fundamentals stressed; comprehensive courses with more professional class hours. Small classes: personalized instruction. For earnest, mature students whose time and budget requires accelerated courses and modest costs. Preparatory courses. Beautiful campus in friendly college town. Well-equipped, new and modernized buildings and laboratories. Enter Sept., Jan., March, June. Write Jean McCarthy, Director of Admissions, for "Your Career in Engineering and Commerce."



**TRI-STATE COLLEGE**

596 College Avenue

Angola, Indiana



# INVENTORS

**L**earn how to protect your invention. The U. S. Patent Laws provide that any new and useful art, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof, may be patented if the act of invention is involved. Therefore, every inventor with a valuable invention should take advantage of the Patent Laws and proceed for patent protection in order to safeguard his rights.

A patent gives the inventor the exclusive right to prevent others from making, using, or selling the invention claimed in the patent for a period of seventeen years.

The Patent Laws were enacted for the benefit of the inventor to give him protection for the features of his invention which are patentable. These features must be properly and concisely set forth and claimed in a formal application for patent, in order to comply with the requirements of the Patent Laws. For that reason, unless the inventor is familiar with patent matters, he should engage a competent registered patent attorney or agent to represent him. We are registered to practice before the U. S. Patent Office and are prepared to serve you in the handling of your patent matters.

A specially prepared booklet entitled "Patent Guide for the Inventor", containing detailed information with respect to patent protection and procedure, together with a "Record of Invention" form will be promptly forwarded to you without obligation upon request.

**CLARENCE A. O'BRIEN & HARVEY JACOBSON**

*Registered Patent Attorneys*

62-J DISTRICT NATIONAL BUILDING  
WASHINGTON 5, D. C.

SEPTEMBER 1956 15



# Learn at Home

*in your spare time*

## to Fix Electric Appliances



### Better Pay—More Opportunities

Get into a field where there is important work and opportunity for the trained man. Millions of electric appliances are sold every year. Every wired home now has an average of 8. Many of them need service and repair. Owners pay well to have them fixed quickly, properly. This is your opportunity for a better job, your own part time or full time business. NRI can give you the training you need, at home, in your spare time.

### A Way to Extra Money

Soon after starting you will be able to earn extra cash fixing toasters, clocks, fans, vacuum cleaners, etc., for neighbors and friends. Keep your job while learning and earning. Put spare time to work for you. Work in your basement, garage, spare room. You'll be amazed how easily, quickly you, too, can start earning many extra dollars. NRI shows you how. Even before you finish training your spare time earnings may pay for the course and equipment.

### NRI Sends Tester to Learn and Earn

You need proper equipment to service today's automatic appliances. With this course you get parts to build professional type, multi-use Appliance Tester. You learn to use it. Takes guess work out of servicing. Mail coupon for FREE book and Sample Lesson. See how easy it is to learn. Find out about NRI—a school that for more than 40 years has been training men, through home study, for success, good pay jobs. Our reputation, record, experience back up this course. Write now to: Electric Appliance Training, NRI, Dept. BJ6, Washington 9, D. C.



**FREE Lesson and Book**  
Mail this NOW!

**NATIONAL RADIO INSTITUTE**

Dept. BJ6, Washington 9, D. C.

Send me Lesson and Book Free. No Salesman will call.

Name ..... Age .....

Address .....

City ..... Zone ..... State .....

APPROVED MEMBER NATIONAL HOME STUDY COUNCIL

**12 Pc. Needle & Warding**  
**FILE SET**  
ONLY  
**\$2.49** (plus 25c hdig. & pstg.)  
Made from best quality tool steel, fits exacting requirements of mechanics, watch, jewelry craftsmen, hobbyists. Kit contains the following 5 1/2" long needle and warding files with high test cutting qualities: round, flat, knife, square, triangular. In all textures: fine, medium fine, medium, medium coarse, coarse. Comes with polished wood handle and new type steel grip check.

**CHROME VANADIUM**  
**29 PC. DRILL SET**  
Specially made for speed drilling. In sturdy plastic tool roll. Finest alloy steel drills hardened and precision ground to the sharpest, longest lasting cutting edge obtainable; will easily and cleanly bite through hardwoods, plastics, aluminum, iron and the toughest steels. Unconditionally guaranteed for thousands of drillings. Full jobber length.  
Sizes by 64ths from 1/16 to 1/2". **\$6.49** ppd. **NOW**.....  
Also available with Turned Down Shanks to fit all 1/4" drills. In individual pocket roll..... **\$8.95** ppd.

**Automatic Siphon Pump**  
Sensational low price  
Now — siphon any liquid automatically, safely, WITHOUT putting tube to mouth! Squeeze bulb of this all new type siphon, liquid starts to flow immediately! Transparent valves let you see liquid flowing! Siphons, pumps gasoline, water, any liquid. Even acids, corrosives! For cars, boats, power mowers, campers, plumbers, doctors, chemists, factories! Acid resistant. Over 7 ft. long overall!

**60 Pc. Set Wire Gauge**  
**CHROME VANADIUM DRILLS**  
Top quality high test Chrome Vanadium Drills designed for speed drilling through toughest steels, woods, plastic, iron and aluminum. Precision ground, long-lasting cutting edges. Guaranteed to give years of satisfaction. A full 60 pc. set nos. 1 through 60.  
A \$14.95 value— **\$5.40** NOW ONLY.....  
plus 35c pp. & hdig.  
Same set above available with Huot Index container— **\$6.65** Only.....  
plus 35c pp. & hdig.

Send check or money order. If C.O.D. fee extra.  
Money Back Guarantee.  
**SCOTT-MITCHELL HOUSE, INC.**  
Dept. M-236 611 Broadway N. Y. 12, N. Y.

## "We're looking for people who like to draw..."



says Norman Rockwell, one of America's 12 Most Famous Artists. If you like to draw, you may have talent to become a successful artist, spare or full time. Find out with our remarkable 8-page Free Art Talent Test. Thousands paid \$1 to take it. Get it FREE. No obligation. Send your name, address, age to: Famous Artists Schools, Dept. 11-K, Westport, Conn.

## Rip Van Winkle Couldn't Sleep with Nagging Backache

Now! You can get the fast relief you need from nagging backache, headache and muscular aches and pains that often cause restless nights and miserable tired-out feelings. When these discomforts come on with over-exertion or stress and strain—you want relief—want it fast! Another disturbance may be mild bladder irritation following wrong food and drink—often setting up a restless uncomfortable feeling.

For quick relief get Doan's Pills. They work fast in 3 separate ways: 1. by speedy pain-relieving action to ease torment of nagging backache, headaches, muscular aches and pains. 2. by their soothing effect on bladder irritation. 3. by their mild diuretic action tending to increase output of the 15 miles of kidney tubes.

Find out how quickly this 3-way medicine goes to work. Enjoy a good night's sleep and the same happy relief millions have for over 60 years. Ask for new, large size and save money. Get Doan's Pills today!



# INVENTORS

If you believe that you have an invention, you should find out how to protect it. The first step is to have a search made of the prior pertinent U. S. patents. If a report on this search indicates that the invention appears patentable you can apply for a patent, and the specifications and claims should be prepared.

The firm of McMorrow, Berman & Davidson, with offices in Washington, D. C., is qualified to take the necessary steps for you. We can make a preliminary search on your invention, advise you whether we think it can be patented, and prepare your application for patent.

Unless you are fully familiar with the U. S. Patent Laws, we recommend that you engage the services of a Registered Patent Attorney to protect your interests. The patent laws are *your* laws. A patent gives you the right to prevent others from making, using or selling the invention claimed in your patent for a period of 17 years.

Use these patent laws for your protection. Investigate whether your invention can be patented. If you have what you believe to be an invention, we suggest that you have this firm make a search for you.

*Send for a copy of our Patent Booklet entitled "How To Protect Your Invention," containing information about patent protection and patent procedure. Along with this we will also send you an "Invention Record" form, for your use in writing down and sketching details of your invention. We will mail them promptly. No obligation. They are yours for the asking.*

**McMORROW, BERMAN & DAVIDSON**

*Registered Patent Attorneys*

**PATENTS • COPYRIGHTS • PATENTS**

**142-Z VICTOR BUILDING, WASHINGTON 1, D. C.**





# NEW, AMAZING 5x50 POWERHOUSE GIANT



**\$12.95  
VALUE!  
NOW  
4.98**

**What you  
can see brought 5 times closer  
1 TO 50 MILES!**

From this  to this 

Just arrived from Germany—the new **POWERHOUSE "GIANT."** This model is new and completely different. It's 66% more powerful than the original **POWERHOUSE.** The finest ever developed by the famous 101 year old German factory. Gives you greater range, greater clarity, sharper images and much more magnification. Bigger and better than ever before. German know-how and superb workmanship are reflected in the many quality features usually found in \$25 binoculars.

## Now 7 Ways Better:

1. High structural strength without tiring weight. It's only 12 ounces. 2. Aluminum draw tubes for smoother faster focusing. 3. Folds to your eye width. 4. Precision Ground Lenses—**NOT PLASTIC!** That's why it doesn't give cloudy, blurred images. 5. Objective lenses interior coated with magnesium fluoride, just like expensive cameras and \$25 binoculars. 6. Extra large 50mm. objective lenses give you viewing even in moonlight! 7. New 5x50 power system gives you 66% more power than original model. You get better viewing whether it's one or 50 miles away.

**FREE**  
Reg. \$1.98  
50 x  
MICROSCOPE



50 X Minivex lenses give you 2500 times area magnification. Thrills! Fun! Educational! Ideal for home & laboratory. Sent FREE with POWERHOUSE Binoculars! Offer limited. RUSH!

Buy direct from world's largest  
Importer of German Binoculars

Thoresen has sold over 1,000,000 German binoculars in recent years. Because we are the world's largest importer of these glasses, we can buy for less and sell for less. That's why we can now offer you this 12.95 binocular for only 4.98.

## SEEING IS BELIEVING!

Try the Powerhouse Giant at our risk! **ONE** look thru this new **POWERHOUSE "GIANT"** will convince you! Because words and pictures alone cannot adequately describe it, we want to send one to you on 7 days home trial. Use it on hunting and fishing trips, the races, bird watching, boating and for vacation fun. Always have a "ring-side" seat at sports events. Then, if you don't think this is the year's biggest binocular value, just return it for immediate refund of your 4.98. Order at once! This offer may be withdrawn due to production limitations in Germany. Send 4.98 check, m.o. or cash. (COD's plus fees.) In any case, you don't risk a cent. So rush order today.

**THORESEN'S, Dept. 7-K-66F**  
352 Fourth Ave., New York 10, N. Y.

# 101 FREE TIPS

For the Handyman  
who works with wood

SEND  
for this informative booklet  
ON

**WOODLIFE**  
The Original  
WATER REPELLENT  
PRESERVATIVE



Anything made of wood — and this folder illustrates 101 items — should have the water repellency, resistance against warping, swelling and shrinking — and immunity against termites and decay — made possible with Woodlife.

Woodlife is the original water repellent wood preservative containing PENTACHLOROPHENOL that should be on every handyman's work shelf — along with this folder which shows how to apply Woodlife to 101 household wood-working projects.

Woodlife is made by the makers of P.A.R., the water repellent, glossless finish that protects and restores the natural beauty of Redwood and Red Cedar.

Send for the "101 TIPS" Booklet, TODAY!

**Protection Products MANUFACTURING COMPANY**  
Dept. K Kalamazoo, Michigan

When you repair, remodel or build, always ask for  
Woodlife-treated lumber!

## DO EVERY FASTENING JOB 10 TIMES FASTER!

Amazing one-hand operation, 10 times faster  
than hammer & nails Can't jam.



At your local  
hardware dealer  
or lumber yard

**ARROW**  
DO-IT-YOURSELF  
TACKER, No. T-50

for ceiling tile, insulation,  
wire fence & every home job.

Arrow Fastener Co., Inc., 1 Junius St., Brooklyn, N. Y.

**YOURS  
FREE!**

**VUER-  
PROJECTOR**  
& Full Color Slide  
Kit—Authentic  
\$4.95 Value!



## If You're Interested In BREEDING TROPICAL FISH For Profit & Pleasure

This handsome, precision-viewing instrument and color slides are yours FREE—just for showing your interest in Tropical Fish Breeding! See gorgeous BETTAS, colorful TETRAS, exotic ANGEL FISH, etc., in the vibrant beauty of full color! Convince yourself Tropical Fish Breeding is the profitable, easy-to-start home business for you! Breed them in your living room, spare-room, anywhere. Success is assured because we'll buy every fish you produce! No experience or costly equipment needed. Start spare-time, on a "shoe-string"...build a \$10,000 home business! Investigate!

Write today for FREE details on "Profit-Proven" Success Plan & Vuor! (If under 17, ask for plan A.)

**TROPICAL FISH  
BREEDERS OF AMERICA**  
Dept. C-9  
Los Angeles 61, Calif.





**LOOK  
THEM  
OVER!**

A wide variety of opportunities  
awaits the **Trained Man** in the  
Fast Growing Fields of  
**TELEVISION**  
**RADIO • ELECTRONICS**  
CHECK THESE OUTSTANDING OPPORTUNITIES!

☐ 1. YOUR OWN BUSINESS—  
Selling, installing, servicing  
Television (including Color TV)  
and Radio receivers, sound sys-  
tems, etc.

☐ 2. MILITARY ELECTRONICS  
—Automatic weapons control  
and communications techni-  
cian, etc.

☐ 3. RADAR TECHNICIAN—  
Operation and maintenance  
of navigation devices, etc.

☐ 4. TV-RADIO BROADCAST-  
ING—Studio technician, con-  
trol room operator, TV camera-  
man. FCC licensed operator.

☐ 5. INDUSTRIAL TELEVISION—  
Installation, operation serv-  
icing of closed circuit TV systems.

☐ 6. AIRCRAFT RADIO—Flight  
tester, control tower opera-  
tor, radio operator.

☐ 7. AUTOMATION ELEC-  
TRONICS—Specialist on  
electronic instruments and auto-  
matic controls.

☐ 8. TWO-WAY RADIO—Op-  
eration and maintenance of  
police, taxi, bus, truck commu-  
nications systems.

☐ 9. REMOTE CONTROLS—  
Laboratory specialist on  
servo-mechanisms, guided mis-  
siles, radio-controlled devices.

☐ 10. COMPUTERS—Install  
and maintain Electronic  
"Brain" devices for office and  
industry.

... PLUS MANY OTHERS

Scores of jobs like those above in the technical end of Television-Radio-Electronics are open to men with proper training. Hundreds of DeVry graduates hold jobs like these. Many prepared at home and then we helped them get started. Hundreds had no previous technical training, no high school diploma, and while training never left home nor quit their jobs. Many were married men. Some paid for their training by repairing TV and Radio sets in their spare time.

DTI's program helps you do this because it is different. You get on-the-job type experience, clear explanations. You build and keep your own test equipment, as you perform over 300 practical projects. You use visual training HOME MOVIES and the remarkable Electro-Lab. You may even build a fine quality 21-inch Television set, if you wish.

#### TRAIN IN OUR WELL-EQUIPPED LABORATORIES

If you prefer, you can get all of your training in our great Chicago Laboratories. Friendly, capable instructors work closely with you, as you learn about the commercial equipment you encounter later in the field. Students use this fine equipment, including the broadcast-type cameras, monitors, microphones, etc. in our TV-Radio studios ... the color TV sets ... the test instruments, etc. Send coupon for details.

#### EMPLOYMENT SERVICE

Placement is the "payoff" in any training program. We have close contact with many employers in our field. We are proud of our graduates—for they have done us proud! That's why we believe we can help you get started. And if you are thinking of going into business for yourself, we help you there too.

#### IMPORTANT FACTS ABOUT MILITARY SERVICE

We have valuable information showing how to make the most of your service in the Armed Forces. Mail the coupon.

#### HOME MOVIES

We loan you a projector and many reels of instructive film. Run them off yourself. How clear the basic principles of Electronics can be with this helpful training aid ... a DTI exclusive!



#### EXCLUSIVE ELECTRO-LAB\*

Wiring diagrams show up through the transparent base. You follow each diagram, making scores of circuits. Parts are mounted quickly ... easily with spring clip connectors. Over 300 projects include the building of a 5-inch Oscilloscope and a Vacuum Tube Voltmeter ... both valuable test instruments.

\*Trademark

#### HERE'S ALL YOU DO

If you are 17 to 55 and want to prepare to get into a field with good pay and promising future, just fill in the coupon and send it to us. We will tell you how you may get ready for a wonderful future for yourself and your loved ones.

Member of National Home Study Council

#### SEND COUPON! GET FREE BOOKLET!

DEVRY TECHNICAL INSTITUTE

4141 Belmont Ave., Chicago 41, Ill., Dept. P5-9-M

I would like a copy of "Electronics and YOU" showing many opportunities in Television-Radio-Electronics, and how DTI may prepare me for a start in this billion dollar field.

Of the opportunities listed above, I am interested in No. \_\_\_\_\_

Name \_\_\_\_\_ Age \_\_\_\_\_

Street \_\_\_\_\_ Apt. \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

1038

DTI's training is also available in Canada

One of America's Foremost Electronics Training Centers

**DEVRY TECHNICAL INSTITUTE**

Formerly DeForest's Training, Inc.

4141 BELMONT AVENUE, CHICAGO 41, ILLINOIS



VACUUM  
TUBE  
VOLT METER







# I'll Train You at Home for A BUSINESS OF YOUR OWN —OR A BETTER JOB

—R. C. Anderson, President of CTI.

MORE OPPORTUNITIES—LESS COMPETITION IN

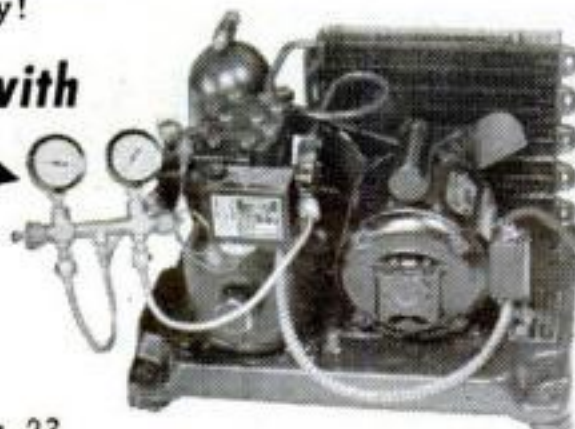
## AIR CONDITIONING AND REFRIGERATION

You've read about the amazing growth of the air conditioning and refrigeration industry. It's one of America's largest opportunity fields because over 150 million units are in use. Last year, 3 million refrigerators, 2 million air conditioners, and a million freezers were sold. *All this adds up to a big demand for trained technicians who can install, repair and service. They make good money—up to \$125 a week and more. Many open their own shops—become independent.*

You can get ready for one of the top-pay jobs in just a few months. CTI will train you at home in spare time. *You'll train with real kits, get practical experience as you go along.* Be sure to mail coupon below for the full story on how you can succeed in this old, established, but growing industry!

### You Practice with 23 KITS →

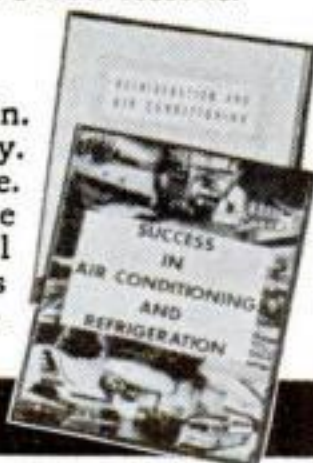
YOU BUILD A  
REFRIGERATOR  
FREEZER  
AIR CONDITIONER  
OR MILK COOLER



Only CTI sends you 23 training kits! At no extra cost, you get all parts and tools to assemble a heavy-duty, commercial-type 1/4 h.p. high-side. (Illustrated above). You run many tests, do 10 service and trouble-shooting jobs. You build and keep an air conditioner, freezer, refrigerator or milk cooler. You learn by doing—get practical experience—learn fast with the aid of easy, illustrated, here's-how lessons.

### Earn as You Train

Earn money in spare time as you train. Do service jobs in your community. Make up to \$15 a week and more. You can make enough in spare time to pay for your tuition. So, mail coupon now!—Commercial Trades Institute, 1400 Greenleaf Ave., Chicago 25.



### FREE! 2 BOOKS!

#### COMMERCIAL TRADES INSTITUTE

1400 Greenleaf Ave., Chicago 25

Dept. R-298

Mail me new **SUCCESS BOOK** and **SAMPLE LESSON**. No cost or obligation.

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Member National Home Study Council

## STOP SAGGING REARS!



with  
LOW-COST

## AIR LIFT PNEUMATIC SPRING BOOSTERS

Car got that "middle age spread" look? Even new cars need help for overloads of luggage, equipment or extra passengers. **AIR LIFTS** fit between leaf springs and frame — inflate with air to support overloads up to 1000 lbs! Perfect for vacation trips, and so easy to install. See your dealer or write for his name.



**FREE!** . . . tip-packed literature on Air Lift remedies for sagging rears. Write Dept. 139.



**AIR LIFT COMPANY,**  
LANSING, MICHIGAN

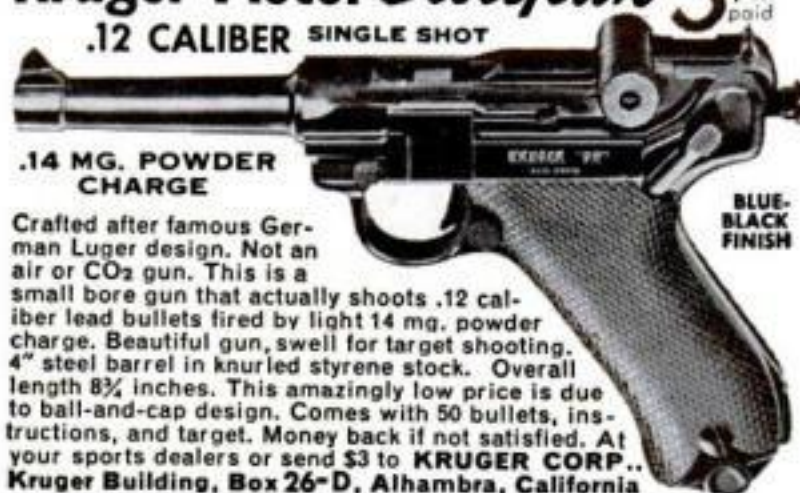
## Kruger Pistol *Bargain* \$3<sup>00</sup> post paid

.12 CALIBER SINGLE SHOT

.14 MG. POWDER  
CHARGE

Crafted after famous German Luger design. Not an air or CO<sub>2</sub> gun. This is a small bore gun that actually shoots .12 caliber lead bullets fired by light 14 mg. powder charge. Beautiful gun, swell for target shooting. 4" steel barrel in knurled styrene stock. Overall length 8 3/4 inches. This amazingly low price is due to ball-and-cap design. Comes with 50 bullets, instructions, and target. Money back if not satisfied. At your sports dealers or send \$3 to **KRUGER CORP.** Kruger Building, Box 26-D, Alhambra, California

BLUE-  
BLACK  
FINISH



## High School at Home

### MANY FINISH IN 2 YEARS

No classes. No time wasted going to and from school. Progress as fast as your time and abilities permit. Standard H. S. texts supplied. Thousands enroll each year in this 59 year-old school. Send for **FREE** descriptive booklet.

**AMERICAN SCHOOL, Dept. H646**  
Drexel at 58th St., Chicago 37, Ill.

Without obligation, please send **FREE** descriptive booklet.

Name .....

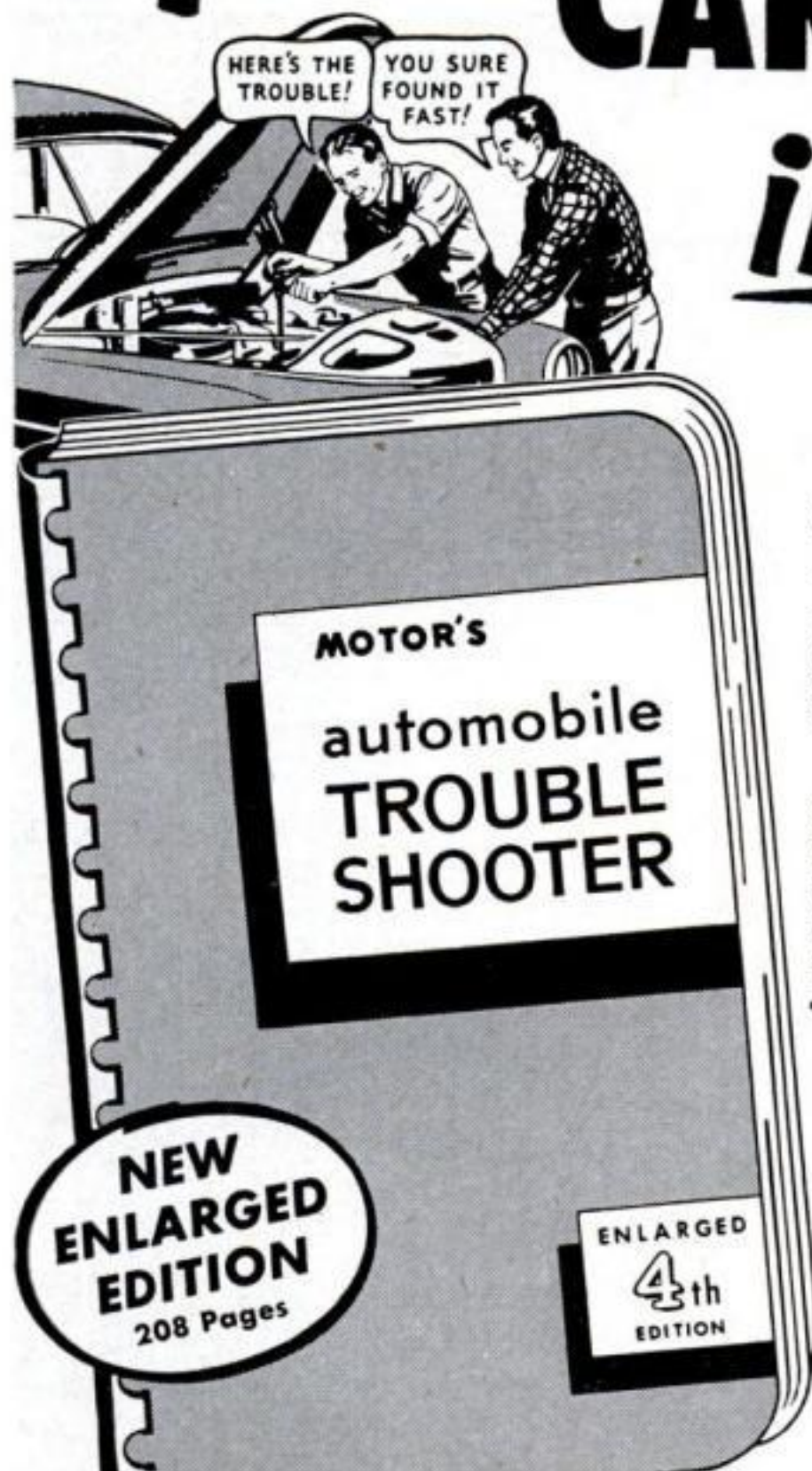
Address .....

Complete Canadian Courses available. Write American School, Dept. H646, 6083 Sherbrooke St. W., Montreal



**MOTOR'S Brand-New Auto "Trouble-Shooter"**

# Spots ANY of 2300 CAR TROUBLES in a Jiffy!



**Just Out! New 4th Edition —  
Greatly Enlarged, Completely  
Up to Date, Indexed, Illustrated!**

**D**ON'T waste time trying to track down car troubles! Let **MOTOR'S** All-New, completely revised **TROUBLE-SHOOTER** find them for you—quickly and easily. Guides you to 2,300 specific causes of car troubles! **NEW, GREATLY ENLARGED EDITION!** Now includes many more helpful diagrams, charts and cross-section **PICTURES** than ever before!

**Saves Time, Work and Headaches**

**MOTOR'S** new **TROUBLE-SHOOTER** helps you "put your finger on" the causes of noises, knock, misses, and breakdowns—in a fraction of the usual time! Suppose a car is "burning oil." Index leads you straight to the 11 things that could be causing the trouble. Or suppose engine stalls frequently. Check index. Know instantly where to find the 6 most common causes of this trouble. Saves time and work. **BIG** section on Automatic Transmission troubles alone is worth the low price of the book!

**Pictures Make Everything Clear**

**Trouble-Shooter** also explains—with help of many drawings, diagrams and other pictures—exactly how Electrical, Fuel, Engine, Transmission, Cooling, Clutch, and other basic systems operate. Tremendous help to beginners as well as experienced repair men! Sturdy spiral binding lets book lie flat.

**SEND NO MONEY**

Simply mail the handy coupon. When postman delivers your **Trouble-Shooter**, deposit with him only \$2.00 plus postage, and COD charges as payment in full. Use the book for a full week. If not delighted, just return book and your money will be refunded! Mail coupon now to: **MOTOR Book Dept., Desk T2J, 250 West 55th St., New York 19, N. Y.**

**"Wouldn't Take \$100  
for Trouble-Shooter . . .**

I had a Studebaker with a clutch chatter. It had been in several shops. I looked in the **TROUBLE-SHOOTER** . . . and there was the answer plain as day."

**William E. Kruger,  
Milwaukee, Oregon**

"Have just received your **SHOOTER TROUBLE-** and have already found it invaluable."

**H. T. L., Lynn, Mass.**

## How to "Put Your Finger On" What's Wrong With ANY Part:

Step-by-step procedures for checking ignition systems (including 12-volt type) fuel system. How to check for fuel pump, carburetor and automatic choke troubles. Trouble-shooting with a voltmeter. 57 points to check in starting a stalled engine. How to check cooling system; 61 causes of overheating. 46 synchromesh transmission troubles. 316 different automatic transmission troubles (covering ALL latest types!). 24 checks for poor high speed performance and lack of power. 56 causes of engine "misses." 74 causes of engine noises. 59 checks for clutch troubles. 86 front-end suspension and steering troubles. 38 rear axle troubles. 44 causes of hydraulic brake troubles. 19 power brake troubles. 80 causes of power steering troubles. 44 checks for power top, seat and window troubles. 23 overdrive troubles . . . and MUCH, MUCH MORE! Quick Index. Many Illustrations.

## MAIL NO-RISK COUPON NOW!

**MOTOR BOOK DEPT., Desk T2J  
250 West 55th St., New York 19, N. Y.**

Rush me **MOTOR'S** brand new enlarged, revised **TROUBLE-SHOOTER**. I will pay postman only \$2 on delivery, plus 46¢ actual Gov't. postage and C.O.D. charges. If not completely satisfied, I may return book in 7 days for immediate refund.

Name.....  
(PLEASE PRINT CLEARLY)

Address.....

City.....State.....

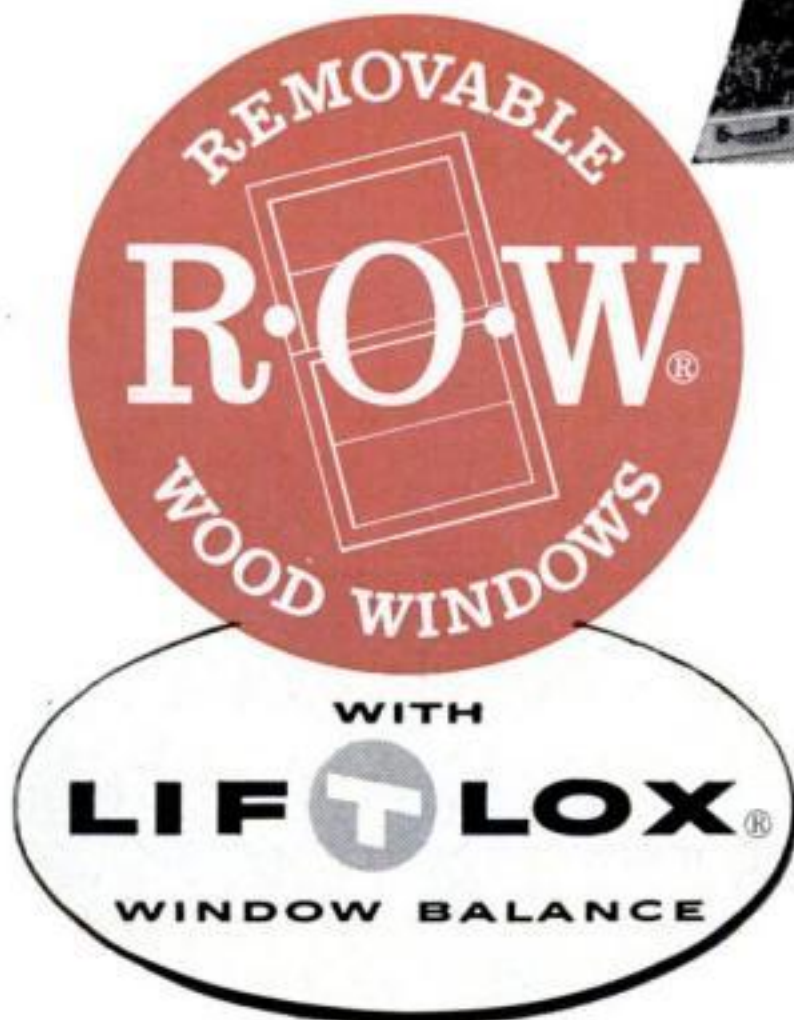
☐ **SAVE CHARGES.** Check here if you **ENCLOSE \$2.00** as payment in full; You **SAVE 46¢** postage and **C.O.D.** charges. Same return privilege: full money-back guarantee.







# EASY IN - EASY OUT



R·O·W and Lif-T-Lox are the registered trademarks of the R·O·W Sales Company

**EASY IN**—For easier and safer handling, sash may be removed before installation. One man can then install the lightened unit—except for the very large sizes. The need for heavy scaffolding is practically eliminated.

**EASY OUT**—Clean or paint R·O·W windows *indoors*, with safety and convenience. With LIF-T-LOX balance, they operate easily and stay weather-tight.


See your local lumber dealer or write

**R·O·W SALES COMPANY • 1399 ACADEMY • FERNDAL 20, MICHIGAN**

SEPTEMBER 1956 **23**



*These great minds were Rosicrucians . . .*



*Francis Bacon Benjamin Franklin Isaac Newton*

## WHAT SECRET POWER DID THEY POSSESS?

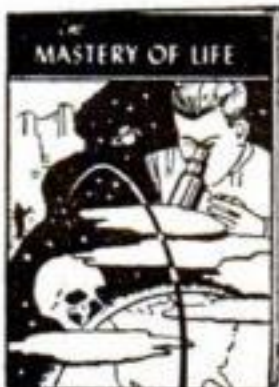
### *Why were these men great?*

How does anyone—man or woman—achieve greatness? Is it not by mastery of the powers within ourselves?

Know the mysterious world within you! Attune yourself to the wisdom of the ages! Grasp the inner power of your mind! Learn the secrets of a full and peaceful life!

Benjamin Franklin, statesman and inventor . . . Isaac Newton, discoverer of the Law of Gravitation . . . Francis Bacon, philosopher and scientist . . . like many other learned and great men and women . . . were Rosicrucians. The Rosicrucians (NOT a religious organization) have been in existence for centuries. Today, headquarters of the Rosicrucians send over seven million pieces of mail annually to all parts of the world. Address: Scribe V.Y.Q.

**THIS BOOK FREE**



**The ROSICRUCIANS**  
San Jose (AMORC) California, U.S.A.

**—SEND THIS COUPON—**

Scribe V.Y.Q.

The ROSICRUCIANS  
(AMORC)

San Jose, California, U.S.A.

Please send me the free book, *The Mastery of Life*, which explains how I may learn to use my faculties and powers of mind.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

## **FAST DRYING LUMINALL** **concrete FLOOR PAINT**

Decorates and preserves interior and exterior concrete floors, patios, primed wood porches and decks. Dries dust-proof in 40 minutes, walk-proof in an hour, traffic-proof overnight! Fast, easy application with brush, roller, floor brush. No special washes or etching needed. Nonflammable! Eight popular colors that wear like iron, last for years!

- COMMERCIAL GARAGES • PATIOS • GARAGES
- SHIPPING AREAS • BASEMENTS • FACTORIES

### **FREE 62-CHIP COLOR CHART**

Features Luminall Concrete Floor Paint, Satin Luminall and Ready-to-Use Luminall for walls, ceilings, trim; Outside Luminall for exterior masonry, asbestos shingles and siding. Write today for your free copy.



**LUMINALL PAINTS** Dept. 72  
3617 South May Street • Chicago 9, Illinois  
Newark 5 • Los Angeles 1 • Dallas 7



**23 YEARS AT THIS ADDRESS**  
"NOT RECAPS" PARTIALLY USED  
TIRES—FACTORY-TESTED TUBE FREE  
**EVERYBODY 10% off ON EVERY TIRE**  
MAY TAKE

12 MOS. WRITTEN GUARANTEE. WHITE WALLS \$1.00 EXTRA Selected for Toughest Jobs—Prices Shaved to the Bone							
600-16	\$5.25	640-15	4.95	700-15(6)	\$8.75	700-20	\$11.95
600-16(6)	6.45	670-15	5.25	750-16(8)	9.95	750-20(10)	14.95
650-16(6)	6.45	710-15	5.35	700-17	10.85	750-20(8)	10.95
750-16(6)	7.45	760-15	5.45	750-17	12.75	825-20	18.55
550-17	4.75	800-15	5.75	650-20	10.75	900-20	18.75
650-15	5.25	820-15	5.75	32x6(10)	12.35	1000-20	19.75
700-15	5.35	700-16(6)	7.75	750-15	11.95	1100-20	19.75

"EXTRA SPECIAL" Fully Guaranteed all size 4-ply pass. FREE TIRE with 2 or more of these.—W. W. \$1.00 \$7.95  
Extra Factory Tested Tube given. GIANT TIRE SALE.

**SNOW TIRES \$8.95** ORDER ANY 4 PLY  
ea. PASSENGER SIZE  
12 MO. GUAR. BLACK WALL  
Thousands of tires shipped all over the U.S.A. All tires shipped  
F.O.B. Phila. Send Check or M.O. with this ad. Dept. 5. No C.O.D.  
**STANDARD 834 N. Broad St., Philadelphia 30, Pa.**



**MAKE BIG PAY!**

in the construction industry as an operator of Bulldozers, Draglines, Back Hoes, Scrapers and Motor Graders. Learn these skills NOW! Contractors need operators of earth-moving machines and pay high wages to our graduates. Don't be satisfied with just a job . . . learn a career!

Write TODAY for FREE School Catalog

**National School of Heavy Equipment Operation**

P. O. Box 8243 (A-10)

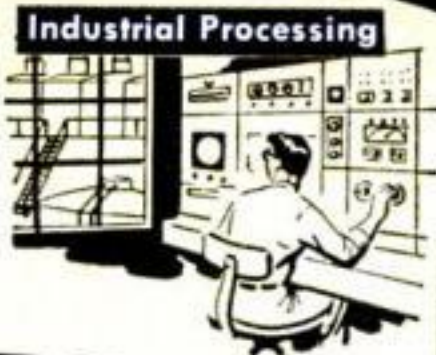
Charlotte, N. C.



# ATTENTION: MEN 17 to 55



Handling Materials



Industrial Processing



*Does your  
present job  
offer  
advancement?*

**PREPARE NOW AT HOME FOR  
A PROFITABLE CAREER IN**

## **AUTOMATION ELECTRONICS!**

**PRACTICAL NEW TRAINING METHOD  
IS THOROUGH, DOWN-TO-EARTH!**

In plant after plant, many machines are being designed to run themselves. This is called "Automation." The jobs of some men who used to run these machines are gradually disappearing. Every year sees more changes; more unskilled jobs being replaced. But it's making many new jobs too—good-pay, solid-future jobs in plants, offices and elsewhere—for men who are trained in Automation Electronics.

### **NOW IS THE TIME TO GET YOUR TRAINING**

The design, operation and maintenance of controls that regulate the new "automatic equipment," is a promising field of the future. It's still uncrowded. There's time to get in on the ground floor if you act now.

### **NO PREVIOUS TECHNICAL TRAINING NEEDED**

Many men 17 to 55, regardless of present job, even men without previous technical training or advanced education, can train for good jobs in Automation Electronics. DeVry Technical Institute offers effective training in your own home with movies, plenty of practical equipment and easy-to-read texts. Or get all of your training in DeVry's large well-equipped training laboratories in Chicago... one of the finest of its kind!

### **WE HELP YOU GET STARTED IN THE FIELD**

When you've completed the DTI training, you'll have the know-how—the practical training you need to hold down a good job in Automation. Our effective Employment Service will help you get

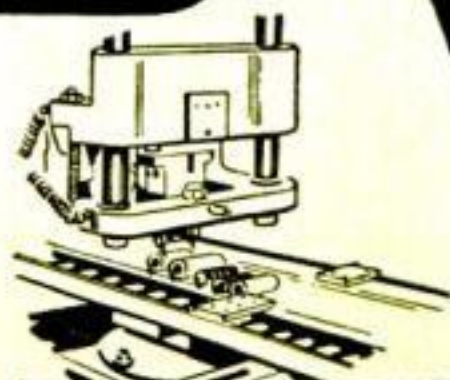
started toward many wonderful and exciting opportunities. You have nothing to lose—and much to gain. Send that coupon now so we can tell you about it.

### **MANY SUCCESSFUL GRADUATES**

For 25 years, DTI has been building men for better jobs. Our files contain many letters from men who have won success in electronics and who give much credit to their DTI training.

### **GET INTERESTING NEW BOOKLET**

The interesting story of "Automation and YOU" is yours for the asking. Simply fill in... mail the coupon. See how DeVry's training programs may prepare YOU for a start in this coming new field.



Making Electronic Devices



Recording and Billing



**GET THIS BOOKLET FREE**

**DEVRY TECHNICAL INSTITUTE, Dept. PS-9A-M**  
4141 Belmont Avenue, Chicago 41, Ill.

I would like further information about the newer Electronic opportunities in AUTOMATION, also facts on how you may help me to prepare.

Name \_\_\_\_\_ Age \_\_\_\_\_

Please Print

Street \_\_\_\_\_ Apt. \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

1040

DTI's training is available in Canada

One of America's Foremost Electronics Training Centers



Member of  
National Home  
Study Council

**DEVRY TECHNICAL INSTITUTE**

CHICAGO 41, ILLINOIS

FORMERLY

DEFOREST'S TRAINING, INC.



# WRIST RADIO

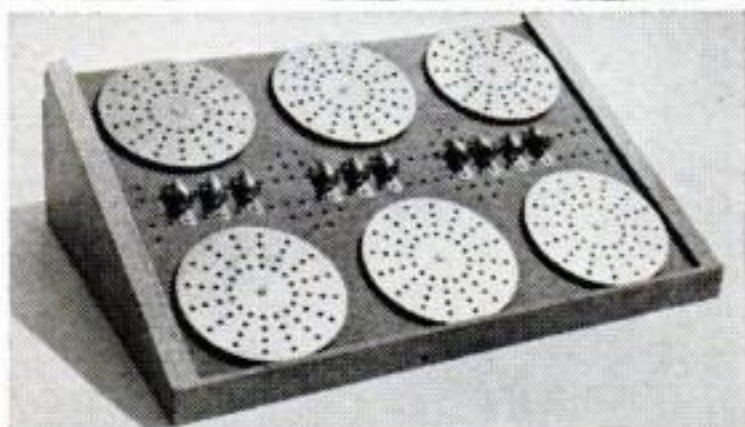


**Weight 2.5 Oz.**

For Ball games, sport outings, office, hiking, bed patients, etc. A broadcast band all-transistor radio has been designed with RF reflex circuit to provide good selectivity and sensitivity. In moderate signal strength areas, no antenna is required up to a distance of 25 miles from a broadcast station of average power. Good consistent reception can be obtained over 35 miles with the use of a wire from 6 inches to 3 feet. The use of transistors makes it a rugged device not subjected to tube breakage. Rugged high quality components are used throughout. Normally the transistor will not have to be replaced for the life of the instrument. Extreme economy of operation is obtained through the use of special circuitry requiring very low current, thus prolonging the life of the mercury cells. The battery life is 100 hours. The small size makes it the ideal radio. It can be worn on the wrist where it easily fits under the sleeve of a jacket or worn in a shirt pocket.

Complete  
**\$29.95**

*Can you think faster  
than this Machine?*



## GENIAC® ELECTRIC BRAIN

**COMPUTES, PLAYS GAMES, "REASONS",  
COMPOSES MUSIC!**

**BUILD IT YOURSELF in a few hours!**

Be careful before you answer. GENIAC the first electrical brain construction kit is equipped to play tic-tac-toe, cipher and decipher codes, convert from binary to decimal, reason in syllogisms as well as add, subtract, multiply, divide and compose music. Specific problems in a variety of fields—math, physics, etc. can be set up and solved with the components and you can design your own machines in addition to the 33 for which we provide parts, instructions and wiring diagrams.

### APPLICATIONS OF GENIAC

SIMPLE COMPUTER CIRCUITS for binary, decimal adding, subtracting, dividing, multiplying machines. PROBLEMS in symbolic logic, reasoning, comparing. INTELLIGENCE TESTING and EXPERIMENT GAME PLAYING CIRCUITS for tic-tac-toe and nim. ACTUARIAL ANALYSIS. NEW! COMPOSE MUSIC—work out your own tunes automatically!

### WHO ARE OUR CUSTOMERS?

Remington Rand • International Business Machines  
Barnard College • Westinghouse Electric • Albert Einstein Medical College • Naval Research Laboratories  
Kansas State University • Duke University • Bell Telephone Laboratories • Hundreds of Junior and Senior High Schools

### WHAT COMES WITH THE KIT?

1—SIMPLE ELECTRIC BRAINS, AND HOW TO MAKE THEM . . . 64 page experimental manual. 2—MINDS AND MACHINES . . . 200 page text on computers, automation and cybernetics. 3—WIRING DIAGRAMS for basic GENIAC circuits. 4—BEGINNERS MANUAL. 5—GENIAC study guide . . . the equivalent of a full course in computer fundamentals, lists additional readings. 6—Over 400 parts and components with plastic "PARTS TRAY." Returnable in seven days for full refund if not satisfied.

ONLY

**\$19.95**

Oliver Garfield Co., Dept. PS-96  
126 Lexington Avenue, New York 16, New York

Please send me:

- 1 WRIST RADIO  
☐ \$29.95 Postpaid  
1 GENIAC Electric Brain Construction Kit and Manuals.  
☐ \$19.95 (East of the Mississippi)  
☐ \$20.95 (Elsewhere in United States)  
☐ \$21.95 (Outside the United States)

My name and address are attached.

NEVER AT THIS LOW PRICE!

## GENUINE 120-POWER ACHROMATIC TELESCOPE

with Coated Lens and  
3-POWER FINDER attached

ONLY  
**\$18.95**  
PREPAID



### EXTRA BONUS GIFTS:

- 108 page book, "Discover The Stars"
- Magic Star Finder Dial
- 220X & 400X Eyepiece lenses

**BRING THE MOON, PLANETS, STARS, PEOPLE,  
120 TIMES CLOSER, CLEARER, SHARPER.**

Never before has an ACHROMATIC 120X telescope with range finder and tripod sold for anywhere near this amazing low price! Now you can not only explore the heavens and bring the moon, planets, stars, etc. 120 times closer, but you can also observe all distant objects, people, ships, etc. too, because all pictures are erect, and not upside down as in all astronomical telescopes. The kind of needle-sharp color-free viewing only a genuine achromatic lens can bring you. Ready for immediate use. Its 5 precision lenses bring you viewing at 40X—80X—120X, the tubes extend to 43", made of jet bakelite, finished in camera bellows black (for sharper, clearer images). Trimmed with gleaming brass. The 3 power finder scope mounted on main tube is a feature usually found on more expensive telescopes—brings difficult objects on target before observing with main scope. For extra stability 5 ft. hardwood folding tripod is equipped with heavy cast iron head fitted with Criterion's famous 360 degree all aluminum mount that locks instantly in any position. Obtainable only from Criterion, shipped prepaid. 4-Bonus gifts—108 page book "Discover The Stars," magic star finder dial that aids in locating stars ANYWHERE at ANY TIME of the year, and 220X and 400X eyepiece lenses included free of any cost for experiments. You must be completely satisfied with this super offer or your money back in full. Shipped to you complete, nothing else to buy, at the amazing low price of \$18.95. Without tripod \$14.95.

Send cash, check, or money order today to:

Dept. P577, Criterion Co., 331 Church St., Hartford, Conn.

## 10-Shot Pellet Automatic



Shoots 10 pellets as fast as you pull trigger. For indoor target work & fun. Automatic action. Holds 10 pellets. Full size model of Colt .45. 6 1/2-in. long. Plastic moulded. Moving parts of die cast metal. With supply of pellets. (Extra Pellets. 25c Pkg. Holster 50c) EACH. . . .

**\$1.65**

Johnson Smith & Company, Dept. 348, Detroit 7, Mich.

## Catalog of 3200 Novelties 10c



Send 10c for amazing catalog of novelties, live animals, scientific supplies, hobbies, funmakers, planes & boats, looms, magic tricks, joke articles, unusual seeds, gadget timesavers, cameras, optical goods, projectors, movies, lucky jewelry, religious novelties, disguises, musical instruments, stamps, coins, puzzles, fortune tellers, radios, auto & bike accessories, telescopes, magnifiers, compasses, banks, smokers' gadgets, artists' supplies, printing sets, engines, motors, shockers, knives, billfolds, fireworks, guns, rifles, sports, books, games, plants, etc. Send name, address & 10c to:

JOHNSON SMITH & CO., Dept. 348

Detroit 7, Michigan



## UPHOLSTERY BE YOUR OWN BOSS

AT HOME, earn right off, with easy UTS Course. Pay for training with sparetime earnings while learning professional custom furniture upholstery; reupholstery, furniture finishing, repairs, slipcover, window cornice, cushion and drapery making.

Course includes FREE—ALL tools, complete frames, materials and fabrics to make beautiful upholstered furniture and slipcovers, yours to keep or sell.

FREE ILLUSTRATED BOOK, "Your New Way to a Successful Career" with sample lesson tells you how. WRITE TODAY! Training in N. Y. School also available.

APPROVED FOR VETERANS

UPHOLSTERY TRADES SCHOOL

Dept. EO-1607, 721 B'way, N.Y. 3, N.Y.

FREE BOOK  
SAMPLE  
LESSON

WITH COURSE  
YOU MAKE

SLEEPER  
CHAIR

CLUB  
CHAIR

OTTOMAN

PLUS  
SLIP COVERS





L. C. Lane, B.S., M.A.  
President, Radio-Television  
Training Association.  
Executive Director, Pierce  
School of Radio & Television.

**VETERANS!**

**NON-VETERANS!**

Study **AT HOME** in your **SPARE TIME** to be a **TELEVISION TECHNICIAN**

**YOU LEARN MORE**  
**because I GIVE YOU MORE!**



Super-Het  
Radio Receiver



C-W Telephone Transmitter



Public Address System



Combination Voltmeter-  
Ammeter-Ohmmeter



AF-RF Signal Generator

## LEARN BY DOING

Every one of my students gets enough equipment to set up his own home laboratory. You learn to be a television technician by actually doing what a TV technician must do on the job. With the equipment I send you, you build and keep an Electromagnetic TV RECEIVER designed and engineered to take any size picture tube up to 21-inch. (10-inch tube furnished. Slight extra cost for larger sizes) . . . Also a Super-Het Radio Receiver, AF-RF Signal Generator, Combination Voltmeter-Ammeter-Ohmmeter, C-W Telephone Transmitter, Public Address System, AC-DC Power Supply. Everything supplied, including all tubes. No experience is necessary . . . My practical, easy-to-understand lessons have brought success to hundreds of men, many with no more than a grammar school education.

## CHOOSE FROM 3 COMPLETE COURSES

My Courses cover all phases of radio, FM and television.

### 1 Radio, FM and Television Technician Course

(No Previous Experience Necessary)

You learn by practicing with the professional equipment I send you. Many of my graduates now hold down good paying technician jobs with such firms as RCA, NBC-TV, CBS-TV, DUMONT TV and numerous other TV studios and plants.

### 2 FM-TV Technician Course

(Previous Training or Experience in Radio Required)

You can save months of time if you have previous Armed Forces or civilian radio experience! Train at home with kits of parts, plus equipment to build BIG SCREEN TV RECEIVER. ALL FURNISHED AT NO EXTRA COST!

### EXTRA TRAINING IN NEW YORK CITY AT NO EXTRA COST!

After you finish your home study training in Course 1 or 2 you get two weeks, 50 hours, of intensive Laboratory work on modern electronic equipment at our associate school in New York City, Pierce School of Radio & Television. THIS EXTRA TRAINING IS YOURS AT NO EXTRA COST WHATSOEVER. My courses are complete without this extra training, however. It is just an added opportunity for review and practice.

### 3 TV Cameraman and Studio Technician Course

(Advanced Training for Men with Radio or TV Training or Experience)

I train you at home for an exciting high pay job as the man behind the TV camera. Work with TV stars in TV studios or "on location" at remote pick-ups!

An optional 30 hour one-week course of practical work on TV studio equipment at Pierce School is offered upon completion of Course 3.

## Radio-Television Training Association

52 EAST 19th STREET • NEW YORK 3, N. Y.

Licensed by the State of New York • Approved for Veteran Training

## EARN WHILE YOU LEARN

Almost from the very start you can earn extra money while learning by repairing Radio-TV sets for friends and neighbors. Many of my students earn up to \$25 a week . . . pay for their entire training from spare time earnings. . . start their own profitable service business.

### FCC COACHING COURSE!

Important for BETTER PAY JOBS requiring FCC License. You get this training AT NO EXTRA COST. Top TV jobs go to FCC-licensed technicians.

## VETERANS!

My school fully approved to train veterans under new Korean G. I. Bill. Don't lose your school benefits by waiting too long. Write discharge date on coupon.

YOU GET  
THESE **FREE**

MAIL THIS  
COUPON TODAY!



Mr. Leonard C. Lane, President  
RADIO-TELEVISION TRAINING ASSOCIATION  
Dept. P-9C, 52 East 19th Street, New York 3, N. Y.

Dear Mr. Lane: Send me your NEW FREE BOOK, FREE SAMPLE LESSON, and FREE aids that will show me how I can make TOP MONEY IN TELEVISION. I understand I am under no obligation.

(PLEASE PRINT PLAINLY)

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

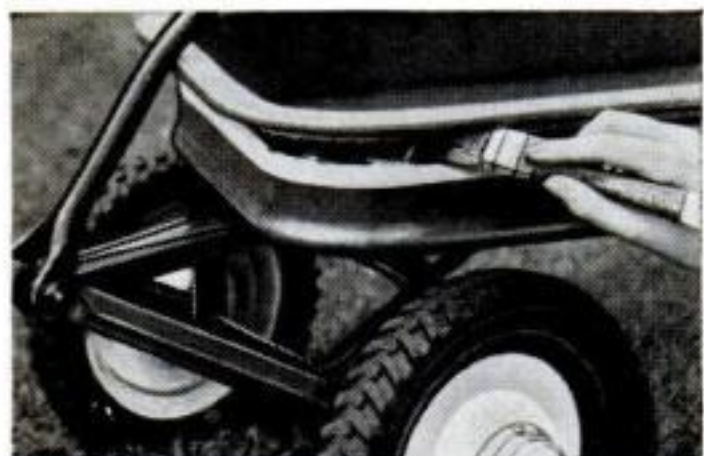
I AM INTERESTED IN:  
☐ Radio-FM-TV Technician Course  
☐ FM-TV Technician Course  
☐ TV Cameraman & Studio Technician Course

**VETERANS!**  
Write discharge date

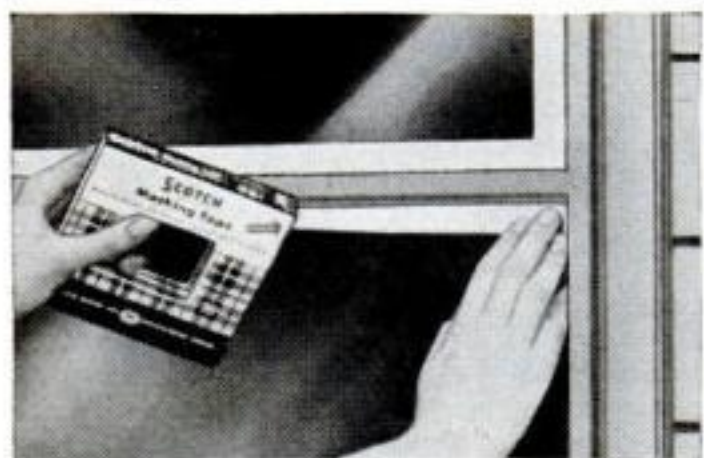


## FIXIT TIPS...

WITH "SCOTCH" BRAND  
MASKING TAPE



**PAINTING A WAGON?** Use this stretchy tape to make professional-looking stripes. Tape fits tight on curves, paint won't bleed through.



**SPEED YOUR JOB,** keep it neat with "Scotch" Brand Masking Tape. Applies easily from cutter-edge carton, strips clean. Get 39¢, 69¢, 98¢, \$1.69 sizes wherever paint is sold.

© 1956, Minnesota Mining & Mfg. Co., St. Paul 6, Minn.

PRODUCT OF  
**3M**  
RESEARCH

# Inventors

Sketch and describe your invention. Sign, date and have this disclosure witnessed by two people who understand your invention. Have us make a preliminary search among U. S. patents already granted for similar types of invention. We report on the probable patentability of your invention and recommend your further course of action.

Write for our instructive booklet, "Patent Protection for Inventors" and our convenient "Evidence of Invention" disclosure form.

**VICTOR J. EVANS & Co.** *Merlin M. Evans*  
REGISTERED PATENT ATTORNEY  
240-K MERLIN BUILDING, WASHINGTON 6, D. C.

## INVENTORS

I shall be pleased to furnish you, upon request, with information relative to patent procedure—without any obligation on your part.

**PATRICK D. BEAVERS**

*Registered Patent Attorney*

937 Columbian Building, Washington 1, D. C.

## INVENTORS

PROTECT YOUR INVENTION BY A U. S. PATENT. SEND FOR FREE "INVENTION RECORD" FORM AND "PATENT INFORMATION EVERY INVENTOR SHOULD HAVE".

**CARL MILLER**

REGISTERED PATENT ATTORNEY

WOOLWORTH BLDG., 35th FLOOR, 96C  
NEW YORK CITY



# PATENTS

## C. A. SNOW & CO.

REGISTERED PATENT ATTORNEYS

WRITE FOR INFORMATION TO

426 SNOW BUILDING, WASHINGTON 1, D. C.



## INVENTORS

Whether an invention is patentable can be substantially determined by a search of the U. S. Patent records. Without obligation, write for information explaining the steps you should take to secure a patent.

**JOHN N. RANDOLPH**

*Registered Patent Attorney*

205 Columbian Building Washington 1, D. C.

## INVENTORS

Send for  
**PATENT INFORMATION**  
Book and  
**INVENTOR'S RECORD**  
without obligation  
**GUSTAVE MILLER**  
96 PS WARNER BUILDING  
WASHINGTON 4, D. C.

**REGISTERED PATENT ATTORNEY**  
ASSOCIATE EXAMINER  
U. S. PAT. OFF. 1922-1929  
Patent Attorney & Advisor  
U. S. NAVY DEPT. 1930-1947  
**PATENT LAWYER**

Reg. U.S.  
Pat. Off.



ALL PARTS &  
TOOLS INCLUDED

## BUILD 16 RADIO

CIRCUITS AT HOME WITH THE NEW IMPROVED  
1957 PROGRESSIVE RADIO "EDU-KIT"

A PRACTICAL HOME RADIO COURSE **\$19.95**  
only

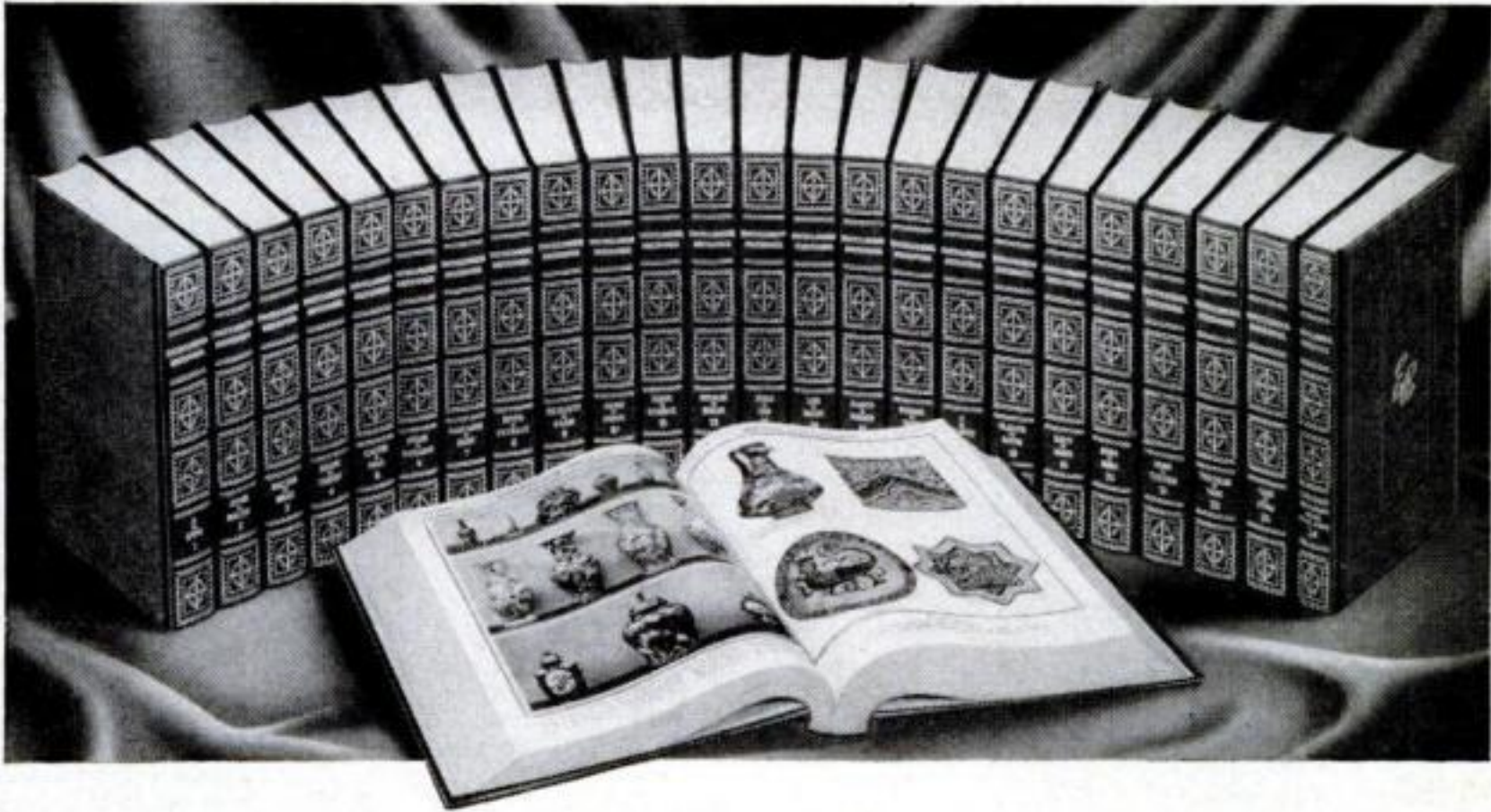
All parts, tools, instructions, punched metal chassis, printed circuit materials, electric Soldering Iron, Tester included. Unconditional Money-Back Guarantee.  
**PROGRESSIVE "EDU-KITS" INC.**  
Rm. 545A, 497 Union Ave., Brooklyn 11, N. Y.

—MAIL COUPON OR POST CARD—  
Please Rush me Free Descriptive Literature concerning "EDU-KIT." Also send me Free Radio, TV, Hi-Fi Servicing Literature. No obligation.

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_



# ENCYCLOPAEDIA BRITANNICA



## Brand New Edition Now Available *Direct From The Publisher* On Easy... Book a Month Payment Plan

### All 24 Volumes Delivered Immediately— You Pay Later on Easy-to-Own Purchase Plan

Yes, the latest edition of Britannica—the greatest treasure of knowledge ever published—is now being offered on a remarkable plan that puts this world-renowned reference library within reach of *every* family. All 24 volumes will be placed in your home...**NOW**...you pay for it as you enjoy it...*as easy as buying a book a month!*

### Thousands of Subjects of Practical Value to Your Whole Family



In the brand-new edition of Britannica you will find thousands of subjects that you and your family will refer to in the course of your normal day-to-day affairs. For example, you'll find special articles on household budgets...interior decorating...medicine and health...home remodeling...child care...adolescent problems...rules and regulations for all sports...every kind of hobby...plus a treasure house of knowledge on *all* subjects. Useable information that can save you many dollars.

### New Edition Profusely Illustrated

The new Britannica almost "televises" the information to you by means of 23,225 pictures, plus charts, maps and drawings. But it does not merely show "attractive" pictures—it is the work of 5,258 of the world's best minds. The final authority on factual knowledge; a constant inspiration that will enrich the lives of yourself and your family.



Mail Coupon  
NOW for  
**FREE  
BOOKLET!**

### In today's world...Factual Knowledge Opens the Way to Financial and Social Success

Self-confidence—and the confidence of others—are two rewards you can expect from Britannica's world of facts. For instance, did you know...

- Britannica provides instant and authentic information on every conceivable subject or thought.



- Britannica will enable parents to work more closely with their children at home...helping them build a more solid foundation in today's highly competitive society.

- It will build self-confidence...by helping all members of your family to understand...and talk intelligently on every subject that enters into the lives of successful men and women.

### Preview Booklet Offered FREE!

Simply fill in and mail the coupon today, and we will send you...*without cost or obligation*...a copy of our beautiful, new booklet which contains an exciting preview of the latest edition of Encyclopaedia Britannica. Send no money—not even for postage. It's yours, *absolutely free!*

Just as soon as we receive your coupon, we will send your illustrated, free booklet, so that you can read and enjoy it at your leisure, in the privacy of your home. There is no obligation, of course. However, since this offer is necessarily limited, please mail the coupon *today* before it slips your mind.



ENCYCLOPAEDIA BRITANNICA, Dept. 10-F

425 N. Michigan Avenue, Chicago 11, Ill.

Please send me, free and without obligation, your colorful Preview Booklet which pictures and describes the latest edition of ENCYCLOPAEDIA BRITANNICA in exciting full detail. Also include complete information on how I may obtain this magnificent set, direct from the publisher, on the Book a Month Payment Plan.

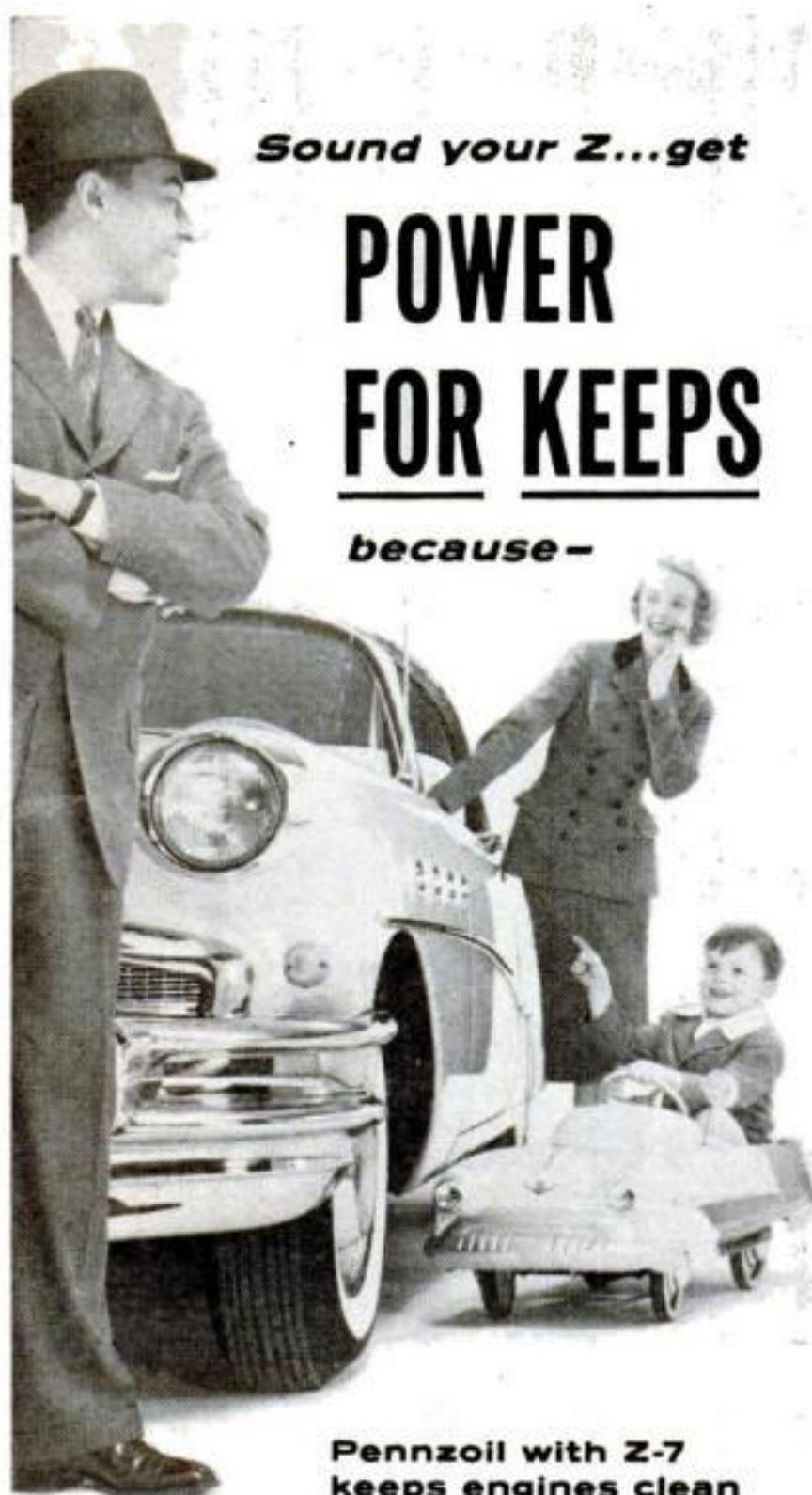
Name \_\_\_\_\_  
(Please Print)

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

In Canada, write E. B. Ltd., Terminal Bldg., Toronto, Ontario





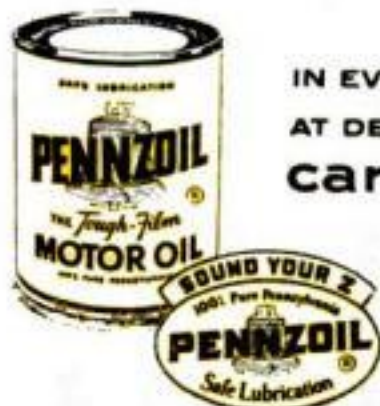
Sound your Z...get

# POWER FOR KEEPS

because—

**Pennzoil with Z-7  
keeps engines clean**

Pennzoil with Z-7 is The Tough-Film<sup>®</sup> oil with an all-oil lubricating body. It stays tough under engine heat and pressures, prevents build-up of power-stealing deposits. By keeping engines clean, this different Pennsylvania motor oil controls carbon completely. There's no knock, no ping. Horsepower stays unlocked—not for just a few miles after an oil change, but for keeps. To enjoy all the smooth power you bought, get Pennzoil with Z-7 now in the exact seasonal grade for your car!



IN EVERY STATE,  
AT DEALERS WHO  
**care FOR YOUR CAR**

MEMBER PENN. GRADE CRUDE OIL ASSN., PERMIT NO. 2, OIL CITY, PA.

## FREE-A BUSINESS OF YOUR OWN

- Start Spare Time
- No Training Period
- No Investment
- No Stock to Buy

### SUBSTANTIAL MONEY-MAKING OPPORTUNITY

Your Total Cost  
—a 3-cent stamp

All we ask of you is that you like to sell. If you can make a fair living selling anything else, we will show you how to make tremendous profits as a MASTER Work Garment Salesman, and furnish everything you need, free.

MASTER Work Garment salesmen are making thousands of dollars in hundreds of communities all over America. Men who—a year ago—didn't know what a work garment was, are now buying homes and cars with the profits from a MASTER Dealer franchise. Your sales are volume sales, repeat sales, steady-income-to-you sales. Every business in the country is a prospect for uniforms and work clothes with name-and-advertising embroidery. Stores can't compete. MASTER brings you the world's finest, most complete quality lines in new styles and fabrics. We supply everything you need—samples, sales material and guidance. You can start right away in your spare time. Keep present job until you are sure your new business is all we say. Write us today for full details.

**GEO. MASTER GARMENT CO.**  
760 WATER STREET, LIGONIER, INDIANA



## NEW FALSE PLATE FROM YOUR OLD ONE IN 18 HOURS

AS LOW AS \$14.95



Send us your old broken, cracked or loose plates and we'll transform them into new lightweight wonder plastic plates. NO IMPRESSIONS needed with our revolutionary method. We use your own old plates. We remake them completely in only 18 hours. Missing teeth carefully matched and replaced. We GUARANTEE TO SATISFY YOU OR REFUND YOUR MONEY.

SEND NO MONEY—Send us your name today and we'll RUSH COMPLETE DETAILS. Begin to enjoy life right now. Clip this Ad; save it and send for free facts.

**CHICAGO DENTAL PLATE LABORATORY • Dept. PS956**  
30 N. Dearborn St. • Suite 807 • Chicago 2, Ill.

## ENGINEERING DEGREE IN B.S. DEGREE IN 27 MONTHS

AERONAUTICAL, CHEMICAL, CIVIL, ELECTRICAL, MECHANICAL and ELECTRONIC ENGINEERING (Inc. Radio and TV)

### Big Demand for Graduates

Hundreds of young men are earning B.S. ENGINEERING DEGREES annually in this recognized institution—year around classes optional. New terms start quarterly. Many students earn a major part of their college expenses in this large industrial center.

Low tuition. Competent instruction. Thorough, intense, practical program. Modern, well-equipped laboratories including new physics laboratory and modern wind tunnel. Individualized instruction emphasized.

Government approved for G.I.'s. Engineering preparatory courses. Students from 48 states and 21 foreign countries. Enter September, December, March, June. Send coupon for free catalog and full information. Enroll now.

## INDIANA TECHNICAL COLLEGE

696 E. Washington Boulevard, Fort Wayne 2, Indiana

Please send me free information on B. S. Engineering degree in 27 months as checked.

- ☐ Aeronautical ☐ Chemical ☐ Civil  
☐ Electrical ☐ Mechanical ☐ Electronics

Name.....

Address.....





## Build this "game room-guest room"! Free plan from Masonite shows how!

Right now, it's a fun-packed game room for all the family to enjoy. But within minutes it can be transformed into a cozy guest room where overnight guests can sleep in comfort.

Day or night, it reveals a lot of really workable ideas—ideas for efficient use of space, for making the room look more attractive, for adding luxury to your living.

It's fun to build. The room you see is

planned for a 12-ft. by 15-ft. area, but our free plan shows how to use your available space to best advantage with Masonite Panel products. Right now these strong, grainless, easy-to-finish panels are offered in several new surface designs that add so much to the "atmosphere" of your room. See them all at your lumber dealer's. Or send the coupon—now!



Fix it up  
inside and out  
with Masonite  
Products!



MASONITE® CORPORATION  
Dept. PS-9, Box 777, Chicago 90, Ill.  
In Canada: Masonite Corporation, Gatineau, Que.  
Please send me your free plan folder for the "game  
room-guest room" and more information about  
Masonite Products.

Name.....  
Address.....  
City.....State.....  
Zone.....County.....



# YOU'RE HIRED

## WHEN PROPERLY TRAINED

### AS AN

## ALL-AROUND MECHANIC



## NOW YOU GET BOTH

# AUTO MECHANICS

## (AT HOME,

# AND DIESEL IN SPARE TIME)

## IN ONE LOW TUITION COURSE

Don't be a "one engine man." Learn *all* engines, including diesel. *Qualified, all-around mechanics* can specialize anywhere, repair anything — are always in demand where pay is tops.

*National Schools of Los Angeles*, a leader since 1905, supplies *everything you need to make more money*: Resident school-tested lessons, manuals, diagrams, latest tools even how to *Earn as You Learn* and *Job Placement Service*.

### COURSE COVERS:

- all engines
- fuel injection
- automatic transmissions
- overhauling
- rebuilding
- customizing
- servicing, maintenance

**NOW!**  
**3 BIG**  
**KITS**  
**TO KEEP!**



Send for **FREE FACT-BOOK** and **SAMPLE LESSON** NOW! To serve you faster. Mail coupon today to address nearest you.

1 "Motor Analyzing Set." Contains Standard Engine Vacuum Fuel Pump Tester, Remote Starter Switch, Modern Timing Light, Standard Compression Tester. Plus compact carrying case & instructions.

2 Complete Set of Professional Tools and All-Metal Tool Box.

3 Top-Quality Socket Wrench with Fittings (not shown).

**NATIONAL SCHOOLS**  
4000 S. FIGUEROA ST., LOS ANGELES 37, CALIF.  
187 N. LA SALLE ST., CHICAGO 1, ILL.  
IN CANADA: 811 W. HASTINGS ST., VANCOUVER, B. C.

**NATIONAL SCHOOLS**  
TECHNICAL TRADE TRAINING SINCE 1905  
Los Angeles, California

**GET FAST SERVICE—MAIL NOW TO OFFICE NEAREST YOU!**

NATIONAL SCHOOLS, DEPT. DC-96  
4000 S. FIGUEROA ST. OR 187 N. LA SALLE ST.  
LOS ANGELES 37, CALIF. CHICAGO 1, ILL.

Send **FREE** Auto-Mechanics Book and Sample Lesson. No obligation, no salesman will call.

NAME \_\_\_\_\_ BIRTHDAY \_\_\_\_\_ 19 \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

VETERANS: Give Date of Discharge \_\_\_\_\_

**start a big profit business**  
**with a small investment**  
**EARN UP TO**  
**\$200 a DAY**

## Manufacturing Exciting New

# RAINBOW ROCK

## Concrete Slump Brick

### in your back yard

Earn big building boom profits with Rainbow Rock, the colorful new building brick that's taking the country by storm. Sell all you can make to contractors, builders, building supply houses. **RAINBOW ROCK CUTS LABOR COSTS BY 1/3!** Amazing low cost machine makes modern slump brick 24" long (3 times the length of ordinary brick) in a variety of widths and pastel colors . . . up to 1500 bricks a day! **NEEDS NO SPECIAL SKILL.** Operates indoors or out. Full instructions and valuable mixing formulae supplied. **YOU CAN START EARNING BIG MONEY NOW. PAY AS YOU PROFIT!** A limited number of machines available on easy payment terms. **NOW** is the time to start. Write today for free literature and full information.

**GENERAL ENGINES CO., INC.**  
Dept. SR-96 Route 130  
Thorofare, N. J. Tilden 5-5401



**STEEL PIER SENSATION**  
Luxurious RAINBOW ROCK fireplace wall in living room of the "Home of the Century" in Atlantic City, N. J.'s Steel Pier . . . acclaimed by over 500,000 Summer, 1953 visitors as the most beautiful they'd ever seen! Endorsed by the Pier's famous architect, William F. B. Koelle.



Makes beautiful, decorative fences, garden walls, garages, outside walls, room separators, etc.

**EYE GLASSES by MAIL As low as \$1.95**

**WRITE for FREE**  
**CATALOG with 14**  
**LENS SAMPLE CARD**

Thousands of  
Customers  
Est. 1939



QUALITY READING-MAGNIFYING OR  
BIFOCAL GLASSES FOR FAR AND NEAR

**ADVANCE SPECTACLE COMPANY, Inc.**  
537 S. Dearborn St., Dept. SP-9 Chicago 5, Illinois

## MONEY for MEN ALL DATA FREE

THE PLASTEX Industry needs manufacturers on small scale and for big production of Lamp and Clock Stands, Art Goods and Novelties in Plastex and Marble imitation. Experience unnecessary. The material makes regular 10c store sellers. Rubber moulds furnished for speed production. Small investment brings good returns. We are now placing big chain store orders with manufacturers. Ambitious men have chance for real prosperity. Our Free booklet will interest and benefit you.

PLASTEX INDUSTRIES, Dept. 2, 3400 Third Ave., New York 56, N.Y.

# RUPTURED?

## NEW LASTING RELIEF

### ENJOY NEW FREEDOM

of action, amazing peace of mind & comfort at work or play. New pleasures replace rupture pain. Proven, patented MILLER holds your rupture back Day & Night—will bring you relief as it has helped thousands of others. Get **FREE** facts today, sent in plain wrapper.

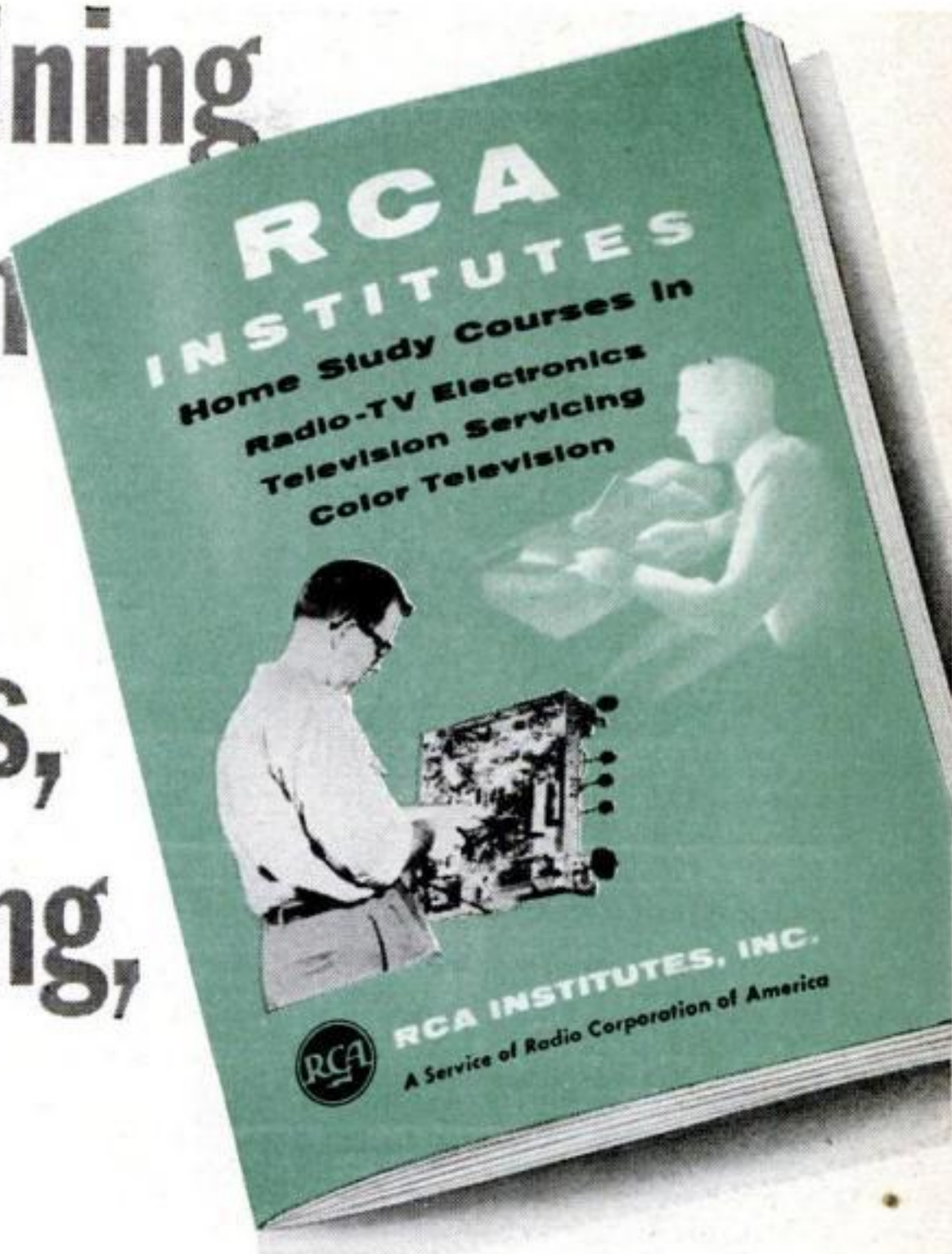
**ENTIRELY DIFFERENT**



Send Your Name and Address to  
**FRED B. MILLER, Dept. 3K**  
Manufacturer, Hagerstown, Maryland



# RCA offers you the finest training at home in Radio-TV electronics, TV servicing, Color TV



## SEND FOR THIS FREE BOOK NOW!

The instruction you receive and equipment you get (and keep) will start you on your way. Pay-as-you-learn. You pay for only one study group at a time. This 52 page book contains complete information on Home Study Courses for the beginner and the advanced student.



**RCA INSTITUTES, INC.**  
A SERVICE OF RADIO CORPORATION of AMERICA  
350 WEST FOURTH STREET, NEW YORK 14, N.Y.

RCA Institutes, Inc., Home Study PS96  
350 West Fourth Street New York 14, N. Y.  
Without obligation, send me FREE CATALOG  
on Home Study Courses in Radio, Television  
and Color TV. No salesman will call.

Name.....  
Please Print

Address.....

City.....Zone.....State.....

VETERANS  
KOREAN G. I.  
P. L. 550  
CHECK HERE ( )

SEPTEMBER 1956 33



# IMPORT PAYS BIG!

B. L. MELLINGER  
Exporter-Importer

**NEW WORLD TRADE BOOM OFFERS BIG PROFIT OPPORTUNITY** to ambitious Men and Women everywhere. I'll show you how you may Import Thousands of desirable products at low foreign prices for buyers in your locality at high U.S. Prices—how you can operate a world-wide mail-order Import-Export business from home whether you live in a big city, or small town.

*B. L. Mellinger*

## HERE'S PROOF!

As startling first-hand proof I will send you an actual import from overseas, **AT MY COST**—something to see and use. Just mail me 25¢ in coin and I will rush you this Imported Melson Automatic cigarette lighter—made to retail in the U.S. at \$2. This magnificent Import will convince you of the tremendous profits being made in World Trade.

**START AT ONCE WITHOUT CAPITAL** or previous experience. Fantastic profits are possible. My training also includes shipment to you of many sample imports from 'round the world.

**GRASP THIS OPPORTUNITY TODAY!** Send for your Melson Automatic cigarette lighter now and I will include full details that show you how to learn my Big Profit secrets of Import-Export—complete instructions that will put you on the road to a Profitable business of your own. Opportunity to travel abroad for profit and pleasure. I'll also show you how you can save many dollars on your own purchases of Clothes, Tools, Gems, Antiques, Watches, Cameras, China, Silks, Toys, etc. You can have the complete details **FREE** without ordering the lighter if you wish, but I would like to send you the Melson lighter as an actual demonstration of Import Values. Either way, mail coupon Now. Airmail reaches me overnight.

The Mellinger Co., Dept. F249 1717 Westwood, Los Angeles, 24, Calif.

HERE'S  
MORE  
PROOF!

"We operate a profitable World Trade Business from our home...Thanks to MELLINGER."

Don and Muriel  
Bowman, Calif.

MAIL  
COUPON NOW!

The Mellinger Co., Dept. F249  
1717 Westwood, Los Angeles 24, Calif.

Mr. Mellinger: ☐ Show me the big profits to be made through World Trade. I enclose 25¢ in coin. Send me one Melson Cigarette Lighter and your plan that shows me how to learn the secrets of World Trade. [No lighter without a coupon. Only one to a person.]  
☐ Just send your **FREE** World Trade Plan.

Name \_\_\_\_\_ Age \_\_\_\_\_

Street \_\_\_\_\_

Town \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



## ALWAYS THE SAME

...today, tomorrow  
and tomorrow

Stable as the alphabet! Go out today and buy any product of any good manufacturer's brand...ask for the same thing tomorrow, or weeks from now...match 'em up, and they're uniformly good, or better.

This uniformity is no accident. Every manufacturer works hard at it because he knows that only *unfailing goodness* will keep you buying his product. So he's mighty sure never to let quality slip. If he changes his product at all, you can bet it's a change for the better.

This goes for everything from a bobby pin to an automobile—just another reason for staying with your favorite brands for years and years.

For news of the goods that are always good, read the ads in this magazine.

## BRAND NAMES FOUNDATION

INCORPORATED

A NON-PROFIT EDUCATIONAL FOUNDATION

437 Fifth Avenue, New York 16, New York

WANT UNIFORMITY? PATRONIZE THE DEALER  
WHO PROVIDES YOUR FAVORITE BRANDS



# STOP

# CHANGING OIL! BUYING FILTERS!

## New Life-Long Filter Made of Cal-si-loy Gives 20,000 Miles per Oil Change!

Latest and most startling development in the automotive industry is a new type permanent oil filter made of a recently perfected alloy which not only possesses super-efficient filtering properties, but also prevents corrosive engine acids from forming.

**CAL-SI-LOY—A MAGIC METAL!** The discovery of CAL-SI-LOY by the Canadian National Research Council makes possible the most perfect filter yet devised! Millions of silvery spherical metal balls are compressed into a solid but porous wall that provides the most efficient filter known. The Life-Long Filter cannot channel, works perfectly in hot and cold climates.

**ENDS FILTER REPLACEMENT!** The Life-Long CAL-SI-LOY Filter will outlast your car with only an occasional cleaning. It purges your oil of impurities—abrasives, dirt, sludge and corrosive engine acids—keeping it clean and fresh for 20,000 miles or more between changes. Unlike the old bronze type filter, the Life-Long CAL-SI-LOY Filter keeps your oil bright and clean.

**REPELS MOISTURE—CANNOT ABSORB ADDITIVES.** By eliminating moisture and engine acids, the Life-Long Filter eliminates sludge. All-metal, it cannot absorb the additives in your oil. The entire CAL-SI-LOY filter wall acts as a catalyst to destroy the damaging acids your engine produces. The Life-Long Permanent All-Metal Filter has the greatest filtering surface of any type of filter.

## "OIL DOES NOT WEAR OUT MECHANICALLY" SAYS U.S.

**BUREAU OF STANDARDS.** Test after test has proved that if acids, metal particles and dirt can be kept out of your oil, its lubricating efficiency remains unimpaired for 20,000 miles or more. Life Long Filters screen out infinitesimally small particles—smaller than any other type of filter!

## SAVES YOU HUNDREDS OF DOLLARS...GIVES YOU NEW

**CAR PERFORMANCE!** The Life-Long Filter can make your engine last twice as long without overhaul or expensive repairs. You get more mileage from your gasoline and oil, enjoy new car pep and performance from your old car!

## ONLY LIFE-LONG GIVES YOU THESE IMPORTANT ADVANTAGES!

- Guaranteed to outlast your car
- Filters the most minute particles
- Cannot channel or blow-up
- Saves the valuable detergent in your oil
- Acts as a catalyst to prevent acid formation
- Repels moisture and prevents sludge from forming
- Efficient in hot or cold climates
- Cannot be cut by sharp metal particles
- Nothing to wear out
- Easy to install—easy to clean
- Thoroughly investigated by U.S. Patent Office and issued Pat. No. 2716492

**MONEY-BACK GUARANTEE.** The Life-Long Filter is unconditionally guaranteed to completely protect your oil for at least 20,000 miles. Free replacement of the unit during the entire life of your car if any mechanical failure develops in your Life-Long Filter!

## DISTRIBUTORS WANTED

Exclusive distributor franchises are now available at no cost. Protected territories. Wire, write or phone for full details now.

# LIFE-LONG

## MANUFACTURING CORPORATION

140 KANSAS STREET, EL SEGUNDO, CALIFORNIA

New Cal-si-loy—silver in color. Porous but solid wall acts as filter and acid-preventing catalyst.

Permanent Seals fit snugly around center post of housing.

Metal ends mechanically attached, not glued, for lifetime use.

## FIFTY MILLION FILTER

**TRAPS!** Photo A shows the damaging particles present in unfiltered oil after limited use. Photo B shows the particles remaining in oil after filtering through old-style filters after limited service. In Photo C, the harmless, infinitesimal particles remaining after screening through a Life-Long CAL-SI-LOY Filter are not visible even though magnified!

## FITS ALL CARS AND LIGHT TRUCKS

You can install the Life-Long Filter yourself in five minutes, and it is easy to clean. Only \$9.95 for all cars using by-pass filters. Full-flow models only \$12.95 (Buick V-8, Olds V-8, Pontiac V-8, '54-'56 Ford V-8 and Mercury, '52-'56 Ford 6 and Lincoln, '46-'56 Chrysler). Housing, only \$9.95. Satisfaction guaranteed or money refunded. Use the coupon below to order direct from the factory!

## FREE! CAL-SI-LOY RADIATOR ROD

**\$3.95 value!** Rids radiators and block of scale, rust and corrosion. Upon receipt of your order for a Life-Long Filter we'll send you a new CAL-SI-LOY Radiator Rod (made of the same miracle metal!) FREE!

LIFE-LONG CORPORATION, Dept. PS-956  
140 Kansas St., El Segundo, California

Please ship me the following at once. Enclosed is \$\_\_\_\_\_ full price. Factory pays all shipping costs.

- ☐ Life-Long By-Pass Permanent Filter @ \$9.95  
☐ Life-Long Full-Flow Permanent Filter @ \$12.95  
☐ Life-Long Filter Housing (needed only where car does not have filter) @ \$9.95

Make, Model & Year Car \_\_\_\_\_

Filter Cartridge Model & No. now used \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



# REPLACE YOUR OLD WOOD CELLAR DOOR



WITH A  
MODERN  
ALL-STEEL  
BILCO  
DOOR

## DO IT YOURSELF IN JUST 3 TO 4 HOURS

Think of it! Only a few hours of pleasant work to replace your unsightly, troublesome wood hatchway with a lifetime, weathertight BILCO . . . the door installed on tens of thousands of new homes.

**PAYS FOR ITSELF!** Cost so little, yet never needs repair or replacement. Operates at a touch. Smooth, trim appearance adds amazing new beauty to your home.

Rush coupon TODAY for free folder and "Do It Yourself" pamphlet showing step by step replacement of wood hatchway.

# Bilco®

AMERICA'S FINEST  
BASEMENT DOOR

THE BILCO CO.  
DEPT. 347C  
NEW HAVEN, CONN.

Gentlemen: Please send me "Do It Yourself Pamphlet" along with other literature showing sizes.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Without Binding, Costly, Monthly  
Purchase Plans—No Obligation!



25-  
DAY  
SUPPLY

# FREE HIGH-POTENCY VITAMINS

Includes "Red" Vit. B12 and other  
stimulants for the growth of  
**RED BLOOD CELLS**

### Each Vitametrin Capsule Contains

Vit. A	6000 units
Vit. D	600 units
Vit. B-12	3 Mgs.
Folic Acid	0.25 Mg.
Vit. B-1	4 Mgs.
Vit. B-2	3 Mgs.
Vit. B-6	0.5 Mg.
Calc. Panto	5 Mgs.
N. Amide	25 Mgs.
Vit. C	50 Mgs.
Choline	25 Mgs.
Inositol	25 Mgs.
Vit. E	5 Mgs.
Calcium	215 Mgs.
Phosphorus	165 Mgs.
Iodine	0.15 Mg.
Iron	12 Mgs.
Magnesium	5 Mgs.
Potassium	1.5 Mgs.
Copper	1 Mg.
Manganese	1 Mg.
Zinc	1 Mg.
Molybdenum	0.2 Mg.
Fluorine	0.1 Mg.
Cobalt	0.15 Mg.

Now you may have, absolutely free, a full 25-day supply of amazing **VITAMETRIN**, the new 25 **VITAMIN-MINERAL FORMULA**, comparable to branded products that retail up to \$7.95 per 100. We pay the expense of this sensational offer . . . not just a token sample, but a full 25 day supply . . . because we're sure this trial will prove to you that you too, like many thousands of others, may experience a new feeling of health, youth, and well-being, a new zest for life. Each easy-to-take **CAPSULE** supplies your body with 13 vitamins and 12 minerals in new higher potencies equal to, or exceeding, the minimum daily requirements, and including 3 mcg. of the "Red" Vitamin B12 along with Folic acid, important factors in **BLOOD-BUILDING**. Also **FREE**, the famous Vitamin-Quota Guide Book. Answers perplexing vitamin questions and shows how to **SAVE UP TO 50%** on the same vitamins your doctor advises. All absolutely **FREE**, no obligation to buy anything, no monthly purchase plan. Supply limited. Only one to a family, please. Enclose 25c to cover cost of packing and mailing. Send for your supply today. **VITAMIN-QUOTA**, Dept. T-522, 880 Broadway, New York 3, N. Y. or T-522, 1125 Crenshaw Blvd., Los Angeles 19, Calif.

Men and Women **STUDY AT HOME** for Business Success and **LARGER PERSONAL EARNINGS**, 44 years expert instruction—over 114,000 students enrolled. LL.B. Degree awarded. All text material furnished. Easy payment plan. Send for **FREE BOOK**—"Law and Executive Guidance"—NOW!

**AMERICAN EXTENSION SCHOOL OF LAW**  
Dept. D-17, 201 North Wells Street, Chicago 6, Ill.

help your  
**HEART FUND**  
help your **HEART**



**MEN!** TRAIN NOW FOR  
A BIG PAY FUTURE IN  
**DIESEL**  
& SCIENTIFIC MOTOR TUNE-UP

- Diesel Construction
- Diesel Engine Repairman
- Diesel Operator
- Industrial Maintenance
- Auto Engine Rebuilding
- Bus & Truck Maintenance

Go places with **DIESEL**! Farms, factories and power plants, trains, ships, trucks, busses all use **DIESEL POWER**. . . all need **DIESEL-trained men**! You can start your **DIESEL** training at home, in spare time, with tested, proved **U E I** training. Course includes practical work on Diesel engines under skilled instructors. You learn the operation, maintenance servicing of all types of Diesel engines, **PLUS** Scientific Motor Tune-up. **ACT NOW!** If you have mechanical ability, **you'll like Diesel!** High School diploma not necessary. Write now for **Free** book "EARNING POWER in DIESEL." Act Today!

**UTILITIES ENGINEERING INSTITUTE**  
2521 Sheffield Ave., Dept. DM-46, Chicago 14, Ill. (Founded 1927)



# NO MATTER WHAT YOUR JOB *Friedman-Shelby* HAS A WORK SHOE THAT WILL FIT IT TO A "T"



Your particular trade  
 calls for a particular  
 shoe to give the best  
 service. That's where  
 your Friedman-Shelby  
 dealer is ready to serve  
 you. He has the perfect  
 shoe to fit your job . . .  
 and fit your feet, too!



## **No. 8053**

Brown glove;  
 leather lined; lace-to-toe;  
 Boltan sweat-resistant insole;  
 Vulcork sole and heel. For Roofers,  
 Riggers, Carpenters, Painters.



## **No. 8047**

Brown glove;  
 cushioned insole;  
 brown neo-cork (oil  
 resistant) sole and heel. For Truckers,  
 Meat Packers, Mechanics, etc.



## **No. 8022**

Black glove  
 blucher oxford;  
 cushioned insole; black neo-cork  
 (oil resistant) sole and heel. For  
 Filling Station Operators, Machinists,  
 Factory Workers, Postal Workers.

For finer dress shoes ask for JOHN C. ROBERTS and KINGSWAY

*Friedman-Shelby* DIVISION • INTERNATIONAL SHOE COMPANY • ST. LOUIS 3, MISSOURI



**Read AUDELS MECHANICS GUIDES for profit**

**INVEST in YOURSELF 15 MINUTES A DAY**

Books shown: DIESELS, BLUEPRINTS, WELDING, MACHINE SHOP, AUTO SERVICE, ELECTRIC WORK, MILLWRIGHT, CARPENTRY, RADIO, WIRING, PLUMBING, MASONRY, BOILERS, SHIPFITTING, REFRIGERATION, STEAM ENGINES, PAINTING, SHEET METAL, MATHEMATICS, DICTIONARY, DRAWING.

Every Mechanic can Step Up his Skill with AUDELS GUIDES. Containing Practical Inside Information in a Handy Form. Covers facts and figures of your Trade. All illustrated and explained. Books sent to you for **7 DAYS FREE EXAMINATION**. Send No Money Nothing to Pay Postman. Check Books Wanted — Mail Today.

### MAIL ORDER

AUDEL, Publishers, 49 W. 23 St., New York 10, N.Y.

Please send me for **FREE EXAMINATION** books marked (x) below. If I decide to keep them I agree to mail \$1 in 7 Days on each book or set ordered and further mail \$1 monthly on each book or set until I have paid price, otherwise I will return them.



**Check NOW!**

You Can Look Over Any Guide In Your Own Home

Start the Easy Payments If Satisfied

**MAIL THIS TODAY**



- |   |     |
|---|-----|
| <input type="checkbox"/> HOME APPLIANCE SERVICE GUIDE, 800 Pages        | \$4 |
| <input type="checkbox"/> AUTOMOBILE MECHANICS GUIDE, 1664 Pages         | 4   |
| <input type="checkbox"/> TRUCK & TRACTOR GUIDE, 1299 Pages              | 4   |
| <input type="checkbox"/> DIESEL ENGINE MANUAL, 575 Pages                | 2   |
| <input type="checkbox"/> MACHINISTS HANDY BOOK, 1650 Pages              | 4   |
| <input type="checkbox"/> WELDERS GUIDE, 600 Pages                       | 1   |
| <input type="checkbox"/> BLUE PRINT READING, 440 Pages                  | 2   |
| <input type="checkbox"/> MATHEMATICS & CALCULATIONS, 700 Pages          | 2   |
| <input type="checkbox"/> SHEET METAL PATTERN LAYOUTS, 1100 Pages        | 4   |
| <input type="checkbox"/> SHEET METAL WORKERS HANDY BOOK, 388 Pgs.       | 1   |
| <input type="checkbox"/> MECHANICAL DRAWING GUIDE, 160 Pages            | 1   |
| <input type="checkbox"/> MECHANICAL DRAWING & DESIGN, 480 Pages         | 2   |
| <input type="checkbox"/> TELEVISION SERVICE MANUAL, 434 Pages           | 2   |
| <input type="checkbox"/> RADIOMANS GUIDE, 1080 Pages                    | 4   |
| <input type="checkbox"/> ELECTRONIC DEVICES, 216 Pages                  | 2   |
| <input type="checkbox"/> ELECTRIC MOTOR GUIDE, 1000 Pages               | 4   |
| <input type="checkbox"/> WIRING DIAGRAMS (Light & Power), 272 Pgs.      | 1   |
| <input type="checkbox"/> ELECTRICIANS EXAMINATIONS, 250 Pages           | 1   |
| <input type="checkbox"/> ELECTRIC POWER CALCULATIONS, 425 Pages         | 2   |
| <input type="checkbox"/> HANDY BOOK OF ELECTRICITY, 1440 Pages          | 4   |
| <input type="checkbox"/> ELECTRIC DICTIONARY, 9000 Terms                | 2   |
| <input type="checkbox"/> ELECTRIC LIBRARY, 7000 Pages (12 Book Set)     | 18  |
| <input type="checkbox"/> REFRIGERATION & Air Conditioning, 1280 Pgs.    | 4   |
| <input type="checkbox"/> MILLWRIGHTS & MECHANICS GUIDE, 1200 Pgs.       | 4   |
| <input type="checkbox"/> POWER PLANT ENGINEERS GUIDE, 1500 Pages        | 4   |
| <input type="checkbox"/> ENGINEERS & FIREMANS EXAMS, 525 Pages          | 1   |
| <input type="checkbox"/> PUMPS, Hydraulics & Air Compressors, 1658 Pgs. | 4   |
| <input type="checkbox"/> OPERATING ENGINEERS LIBRARY (3 Books)          | 9   |
| <input type="checkbox"/> CARPENTERS & BUILDERS GUIDES (4 Book Set)      | 6   |
| <input type="checkbox"/> PLUMBERS & Steamfitters Guides (4 Book Set)    | 6   |
| <input type="checkbox"/> MASONS AND BUILDERS GUIDES (4 Book Set)        | 6   |
| <input type="checkbox"/> PAINTERS & DECORATORS MANUAL, 450 Pgs.         | 2   |
| <input type="checkbox"/> HOUSE HEATING GUIDE, 1000 Pages                | 4   |
| <input type="checkbox"/> OIL BURNER GUIDE, 384 Pages                    | 1   |

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 Occupation \_\_\_\_\_  
 Employed by \_\_\_\_\_



## GENUINE ALNICO MAGNETS

**AMAZING, PERMANENT, NON-ELECTRIC. HIGHLY PRACTICAL.** Conduct interesting experiments. Hundreds of uses. Retrieve valuable steel items such as guns, tackle from fresh or salt water; tools from tanks & drains. **GUARANTEED.** Try any magnet one week. Money back if you are not well-pleased.

- |  |               |
|--|---------------|
| No. 8-710 Has pull of 225 lbs. on flat steel block | \$16.50       |
| No. 8-825 Has pull of 125 lbs. on flat steel block | \$9.50        |
| No. 8-575 Has pull of 75 lbs. on flat steel block  | \$6.50        |
| No. 8-500 Has pull of 50 lbs. on flat steel block  | \$4.50        |
| No. 8-47 Hot Pad Magnets 10 for \$1.00             | 50 for \$4.87 |
| No. 8-35 Hobbyist assortment of 8 small magnets    | \$1.50        |
- Send M.O. or check. We pay postage. Sorry no C.O.D.'s.

MIAMI MAGNET COMPANY, 3240 N. W. 27th Ave., Miami 42, Fla.

## PAINTING IS EASY! WITH THE FAMOUS BURGESS electric SPRAYER

Just plug in and Spray

### SPRAYS:

PAINT • VARNISH • ENAMEL • SHELLAC • MOTHPROOFERS • GARDEN SPRAYS • WATER • INSECTICIDES

**1,000 USES IN EVERY HOME!**

For the fastest, smoothest painting or spraying job you ever saw, try the Burgess Sprayer. Completely self-contained... just plug into regular household outlet, pull the trigger, and paint furniture, floors, walls, screens, cabinets, fences. Fine for mothproofing and garden spraying, too. New sapphire nozzle, handy spray-adjuster. 25-oz. graduated jar. Easier to clean than a brush. Get your Burgess Sprayer today!



only **\$12.95** AT YOUR FAVORITE DEALER

If not available locally, send \$12.95 for post-paid delivery. Money-back guarantee.

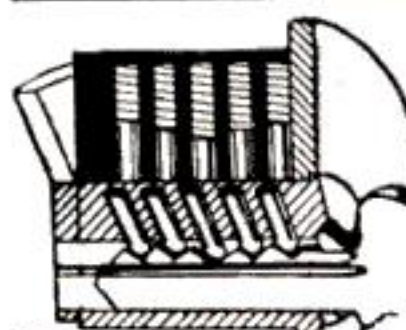


SEND FOR FREE BOOKLET "HOW TO PAINT THE EASY WAY" BURGESS VIBROCRAFTERS, INC. DEPT. A-41 • GRAYSLAKE, ILLINOIS

## Secrets of VENTRILOQUISM Now Revealed!



Easy to learn in 60 to 90 days with our Home Study Course. **RESULTS GUARANTEED.** Make Money! Be Popular! Have Fun! Big Opportunity! Radio, Television, Stage Appearances! For Free Information regarding price and terms, WRITE. You must state your age. Dummy Catalog 25c. **FRED MAHER SCHOOL OF VENTRILOQUISM** Box 36, Studio PS-9, Kensington Station Detroit 24, Michigan



## Locksmithing AND KEY MAKING Now Made Easy!

Practical up-to-date course teaches you how to pick locks, de-code, make master keys, repair, install, service, etc. New self-instruction lesson for every handyman, homeowner, carpenter, mechanic, service station operator, fix-it shop, hardware dealer, gunsmith. 68 easy illustrated lessons. Full price only \$5.95, post-paid; or C.O.D. plus postage. Satisfaction or refund guaranteed.

Complete course \$5.95 now only Nelson-Hall Co., Dept. JU-1 210 S. Clinton St., Chicago 6, Ill.

## TASOPE PHOTO-ENGRAVING PLANTS



Establish your own profitable PHOTO-ENGRAVING business. Make cuts for newspapers, printers, and advertisers. Make etched name plates, plaques etc. Instructions furnished, no experience necessary. Sold direct from factory since 1931. First five hundred cuts sold locally or by mail will pay for plant and pay you well for your time. Write for **FREE** catalog.

MATERIAL COST OF THIS CUT 1/4¢ SELLING PRICE \$1.00 AND UP

TASOPE, DEPT. PS-9, AURORA, MO.



## INDUSTRY NEEDS TOOL AND DIE DESIGNERS

### MAKE \$120 FOR 40 HOUR WEEK

There's a place for you in this important, expanding field. Clean, interesting work; high pay; plenty of job and advancement opportunities. And only ACME SCHOOL can offer you complete training—by correspondence. High school education sufficient; no special art talent needed. Write today to Acme School of Die Design, Corres. Div. SC, 8 N. Jefferson St., Dayton 2, Ohio. Approved for Veterans Training.



# *Yours* FOR JUST \$1.00



**This \$4.95 Regular Size Presto Fire Extinguisher for Letting Us Prove How YOU CAN MAKE UP TO \$1,000<sup>00</sup> A MONTH!**

C. Kama of Texas Making Even More—  
Said, "Haven't Touched Bottom Yet!"



We DARE make this amazing offer because we're certain that once you actually use a PRESTO to put out a demonstration fire in a bucket—you'll realize why it "sells on sight" to car owners, homes, stores, farms, boats, offices, factories, and to stores for re-sale. PRESTO's startling chemical is 1 1/2 to 6 times as effective as ordinary extinguisher chemicals on equal-weight basis... permits light, handy extinguisher even a child can use!

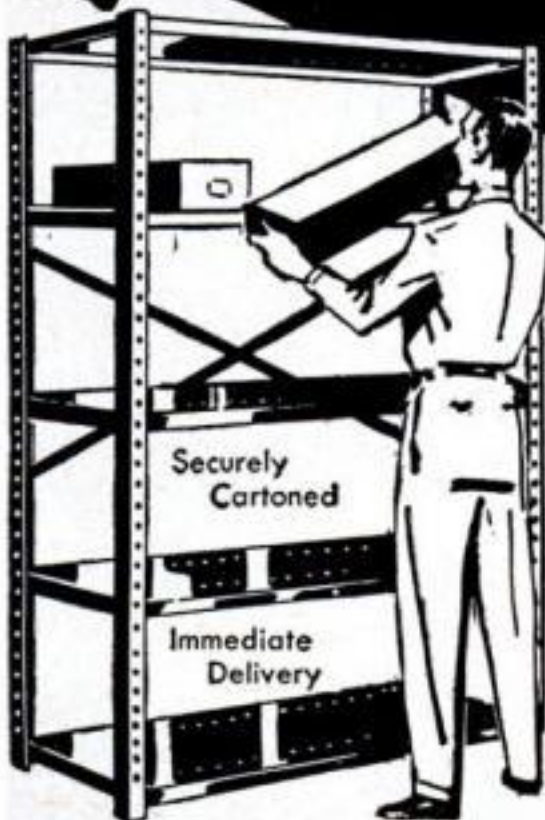
### Here's Our Daring \$1 Offer!

Send your name and address with only \$1.00 TODAY—and we'll send you a regular \$4.95 PRESTO at once. Then you can demonstrate this miracle fire extinguisher to yourself and friends and see for yourself. If not amazed, return PRESTO to us and we'll refund your \$1.00. Or keep it at this big saving when you order 6 or more. You can't lose. You risk nothing. We'll also send you FREE a complete Sales Kit to help you get started. Act now. Write to MERLITE INDUSTRIES (Presto Div.), 114 E. 32nd. St., Dept. X-16L, New York 16, N.Y. IN CANADA: Mopa, Ltd., 371 Dowd St., Montreal 1, P. Q.



## Steel 5-Shelf Unit

75 Inches High  
36" Wide—12" Deep



**Hundreds of Uses**  
• Offices • Churches  
• Schools • Garages  
• Stores • Homes  
• Shops • Greenhouses  
• Hobby Shops

Adjustable shelves, back braced...green metallic finish... Shipped K. D.

**888**  
F.O.B. Detroit

15" depth 9.88  
18" depth 10.88

Extra Shelves  
12" deep 1.50, 15" deep 1.75  
18" deep 2.00

### MOHAWK LUMBER & SUPPLY COMPANY

S 14525 W. Chicago Blvd., Detroit 28 Mich.

Ship Shelf Units as follows: 12" deep 15" deep 18" deep  
and extra shelves 12" 15" 18" .... F.O.B. Detroit.

\$3 deposit with C.O.D. orders ☐ Enclosed ☐ Check ☐ M.O. for \$

NAME \_\_\_\_\_

Ship via ADDRESS \_\_\_\_\_

☐ FREIGHT ☐ EXPRESS CITY \_\_\_\_\_ STATE \_\_\_\_\_

SEPTEMBER 1956 39

## NATIONAL SCHOOLS

*proudly presents*

**TELERAMA • ALL 8 BRANCHES OF  
TELEVISION • RADIO •  
ELECTRONICS**  
IN ONE DYNAMIC, MODERN SHOP METHOD,  
HOME TRAINING COURSE

You get and keep  
ALL this modern, newest,  
practical equipment!

Registration  
applied for



**YOU COVER ALL  
8 BRANCHES IN  
ONE MASTER COURSE,  
ONE LOW TUITION**

1. Television—including color TV
2. Radio — FM & AM
3. Industrial electronics
4. Sound recording and Hi-Fidelity.
5. Preparation for FCC License
6. Automation
7. Radar & Sonar
8. Communications

- Parts to build a modern TV set, including large screen Picture Tube.
- Parts to build a powerful Superhet Receiver, standard broadcast and short wave
- Parts to conduct many experiments and build — • Continuity Checker • RF Oscillator • TV Circuits • Audio Oscillator • TRF Receiver • Signal Generator
- Professional Multitester
- A MUST for all technicians

**FOR MEN WHO WANT TO EARN MORE MONEY!**  
Another great advance in Home Study Training Let National Schools, of Los Angeles, a practical Technical Resident

Trade School for over 50 years, train you at home by Shop-Method, for today's unlimited opportunities in ALL 8 BRANCHES of the Television, Electronics, Radio industry

**YOU DO MANY PRACTICAL JOBS** — including servicing, circuit analysis. Build a modern TV set from ground up, with equipment kits we send you, including a new large-screen picture tube and professional Multitester, at no additional charge You receive an experiment lesson with each kit.

**EARN AS YOU LEARN** Many of our students earn their entire tuition and more in Spare Time jobs we show them how to do while learning. **YOU GET GRADUATE ADVISORY SERVICE, TOO.**



**SEND FOR FREE FACT-BOOK  
AND FREE SAMPLE LESSON!**  
Mail coupon now to office nearest you

### NATIONAL SCHOOLS

4000 S FIGUEROA ST., LOS ANGELES 37, CALIF  
187 N LA SALLE ST., CHICAGO 1 ILL

IN CANADA: 811 W. Hastings St. Vancouver, B. C.

### NATIONAL SCHOOLS

TECHNICAL TRADE TRAINING SINCE 1905  
Los Angeles, California

**GET FAST SERVICE—MAIL NOW TO OFFICE NEAREST YOU!**

NATIONAL SCHOOLS, DEPT. RC-96

4000 S FIGUEROA ST. LOS ANGELES 37, CALIF OR 187 N LA SALLE ST CHICAGO 1 ILL

Rush free TV-Radio "Opportunity" Book and sample lesson No salesman will call

NAME \_\_\_\_\_ BIRTHDAY \_\_\_\_\_ 19 \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

VETERANS: Give Date of Discharge \_\_\_\_\_



# HOW MANY FEATHERS ON A MALLARD?

Add up the figures and find out. Most anybody can add, but can you add correctly? The reason people like number puzzles is because they are fascinating. Fun right in your own home, and **CASH REWARDS** for the **WINNERS**.

**\$6360.00 IN 75  
CASH PRIZES** (NOW ON DEPOSIT)



**FIRST PRIZE \$1500 plus \$500 Bonus for Promptness (see rule 2)**

**Second Prize . . . . . \$1000.00**  
**Third Prize . . . . . \$500.00**  
**Fourth Prize . . . . . \$350.00**  
**5th to 8th Prize, each . . . \$200.00**

**9th to 13th Prize, each . . \$100.00**  
**14th to 18th Prize, each . . \$50.00**  
**19th to 44th Prize, each . . \$25.00**  
**45th to 75th Prize, each . . \$10.00**

## — HERE ARE THE RULES —

1. This is entirely a contest of numbers, strictly a Game of Skill. Add together the numbers that make up the drawing of the Mallard and get the **SUM TOTAL** of the figures. The picture is made up of single digits: 2, 3, 4, 5, 7, 8 and 9. There are no sixes, no ones, no zeros. There are no double numbers like "23," etc. Just add 2 plus 3 plus 5, etc., and get the **TOTAL**. There are no tricks to this puzzle, just a problem in addition. It is not so easy but if you are careful you may get it exactly right. Only persons sending a \$5.00 contribution to our Scholarships Program are eligible for these Cash Prizes. No additional donation will be required at any time during the contest. Checks and Money Orders should be made payable to 'SCHOLARSHIPS, INC.' Send cash if you prefer. Write us for additional puzzle sheets if you need them.

2. If you send your contribution before the date printed on the entry blank you will qualify for the \$500 Promptness Bonus, making the total First Prize \$2000.00. The Promptness Bonus will be added to the first prize only.

3. You should check and recheck your solution carefully before mailing. Once it has been sent it may not be changed or withdrawn. A contestant may submit an additional entry in this contest with an improved score provided each such entry is accompanied by the required \$5.00 contribution. We will acknowledge receipt of your entry and contribution promptly. Read the rules carefully. Please do not write for additional information concerning this

contest since information that is not available to all other contestants cannot be given.

4. This contest is confined to persons within the continental limits of the United States. Persons directly connected with Scholarships, Inc. and members of their immediate families are ineligible. Due to the uncertainty of mail address entries are not recommended from persons in the Armed Forces. Entries will not be accepted from persons in Alaska, Canada, Hawaiian Islands and other locations outside of the United States proper.

5. Entries will be accepted from July 1 to October 10, 1956. Entries postmarked October 10 will be accepted.

6. In case of ties on this Mallard Puzzle the winners will be decided by a tie-breaker number puzzle consisting of drawing a path across a chart of numbers to arrive at a high total. The contestant's position in the winning list will be determined by the best scores submitted; the best answer will receive First Prize, the second best answer will receive Second Prize, etc. In case of ties on the tiebreaker puzzle, prizes will be reserved for the positions of tied contestants and their final order of finish determined by additional tiebreaker puzzles until a definite winner for each prize is chosen. Seven days will be allowed for working the first tiebreaker puzzle and three days for each subsequent tiebreaker. If ties remain after seven tiebreaker puzzles, duplicate prizes will be paid.

(continued)



## PRIZE CONTEST continued

7. It is permissible for any contestant to receive help from their relatives or friends but **ONLY ONE SOLUTION** may be submitted to the tiebreaker puzzle by any group working together, and any solution known to have been submitted in violation of this rule will be rejected.

8. A complete report of this contest including the names of all winners will be mailed to every contestant just as soon as the winners have been decided. The sponsors of this contest reserve the right to decide any questions that may arise during the contest and persons who enter agree to accept these decisions as final.

C. L. KITTLE, Manager

Here is a contest soon over and soon paid off. The rules are simple and complete. It's entirely a contest of numbers, strictly a game of skill. We print the winning answer with the name and address of the winner, in fact we print the names and scores of all of the winners. A pencil is the only tool required and you start on an equal basis with everyone else. No pictures to identify, no statements to write.

If you have never taken part in a number puzzle contest why not give it a try. Give yourself a fair chance to succeed. This may be the hobby you have been looking for. Operated by a non-profit corporation required by its charter to devote receipts in excess of prizes, advertising and legitimate operating expenses to charitable purposes.

Miss Phillis Jordan is one of 21 nurses in training at nearby hospitals under our Scholarships and writes: "It has always been my desire to be a nurse and my scholarship has made that dream possible. My grateful thanks to those associated with Scholarships, Inc."



Mail to **SCHOLARSHIPS, INC.**  
Box 241, Lawrenceburg, Ind.

There are \_\_\_\_\_ feathers on the Mallard.

Type your name and address if possible.  
If not print by hand.

Name \_\_\_\_\_

Address \_\_\_\_\_

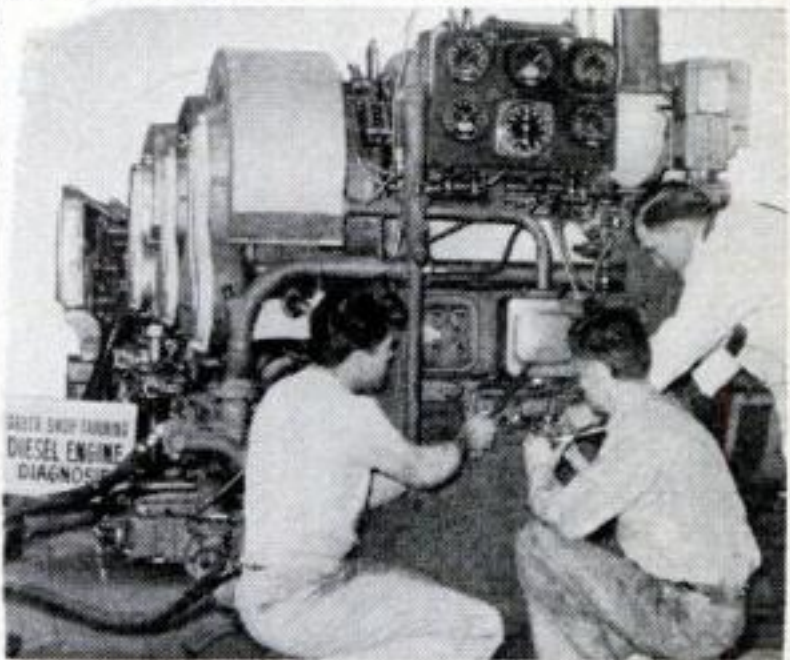
City \_\_\_\_\_

Zone \_\_\_\_\_ State \_\_\_\_\_

Donations mailed before **OCTOBER 5, 1956**, qualify for Promptness Bonus.

# DIESEL

## MECHANICS IN DEMAND



Learn to earn big pay in **DIESEL** in our large, modern equipped Chicago school and shop. No previous experience or training necessary. We help you find living quarters and part time job while in school. Complete, practical courses taught in the following trades, under the supervision of experienced, expert technicians.

APPROVED FOR CIVILIANS ☐ OR GI'S ☐

### —CHOOSE YOUR TRADE—

CHECK HERE	WEEKS
<input type="checkbox"/> <b>DIESEL MECHANICS</b>	20
<input type="checkbox"/> <b>AUTO MECHANICS</b>	20
<input type="checkbox"/> <b>BODY &amp; FENDER</b>	16 <sup>2</sup> / <sub>3</sub>
<input type="checkbox"/> <b>GAS-ARC WELDING</b>	4-12
<input type="checkbox"/> <b>REFRIGERATION</b>	13 <sup>1</sup> / <sub>2</sub>
<input type="checkbox"/> <b>AIR CONDITIONING</b>	8 <sup>1</sup> / <sub>3</sub>
<input type="checkbox"/> <b>MACHINIST TRADE</b>	30
<input type="checkbox"/> <b>ADVANCED MACHINIST</b> (includes tool & die)	32 <sup>1</sup> / <sub>2</sub>
<input type="checkbox"/> <b>PIANO TUNING &amp; REPAIR</b>	36

### CHOOSE YOUR ENGINEERING COURSE

These courses are intended as terminal education for men who wish to enter the Diesel-Automotive and Refrigeration-Air Conditioning fields as technicians. These courses are designed to prepare men for supervisory positions. Students with a high school education, or equivalent, will be accepted.

<input type="checkbox"/> <b>DIESEL AUTOMOTIVE ENGINEERING</b>	2 years
<input type="checkbox"/> <b>REFRIGERATION &amp; AIR COND. ENGINEERING</b>	18 months

### FREE EMPLOYMENT HELP

Start your career with Greer by checking your interest above and mail coupon for complete information at no obligation.

NAME \_\_\_\_\_ AGE \_\_\_\_\_

STREET \_\_\_\_\_

TOWN \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

Established 1902—Over 50,000 Graduates  
54 years of continuous trade school experience  
to guide your training.

# GREER

## SHOP TRAINING

Box 1, 2238 S. Michigan Ave.  
Chicago 16, Illinois



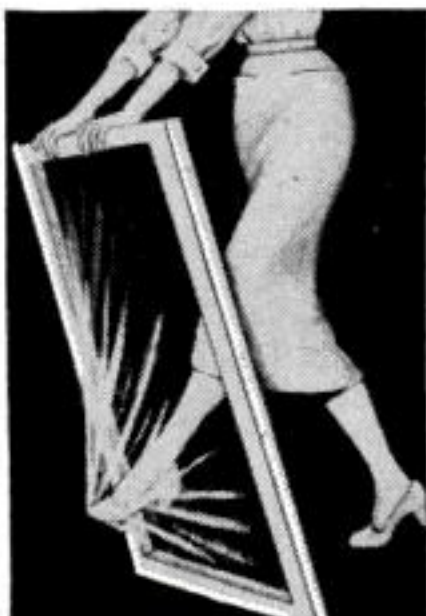
# Regular 49½¢ Plastic STORM WINDOWS

CUT PRICE  
ONLY

19½¢

108 Sq. Ft. Size

No Tools • No Screws  
No Nails • No Hooks



Protect your family  
all winter...for pennies!



INSTALL IN MINUTES

Just Press On

No nails, screws, tools. Cut & fit window, press on Adheso Border—that's all! So easy! So simple and quick! When winter's over fold away like cloth for next year.

LIFT FOR AIRING

OVER 200,000 SOLD FOR 49½¢

Storm Windows need not cost up to \$14. Now, for pennies per window, you can seal out wintry blasts with TRANS-KLEER—the amazing flexible product developed by a multi-million dollar American firm. Imagine it—a standard 10.8 sq. ft. window can be insulated for only 19½¢. This storm window is as transparent as glass, yet can't peel, chip, shatter or rattle! Weighs less than 1/10th of the lightest glass window developed—yet laboratory tests show it has the tensile strength of over a TON per square inch! Crystal clear yet flexible like rubber! Not affected by snow, sleet, rain or dampness—because it's NONPOROUS. Won't crack at even 53 degrees BELOW FREEZING. Use and re-use YEAR AFTER YEAR for winter comfort and protection!

## In Use from Coast to Coast

TRANS-KLEER plastic storm windows are in use thruout the U.S. & Canada by home owners, hospitals, churches, public buildings, etc. Shipped flat in rolls measuring 36" x 432"—108 sq. ft.—enough for 10 standard windows. Over 2,000,000 windows sold for 49½¢ each! Now—exactly the same 10 window kit—including special Adheso Border is yours for only 1.98 during this sale. 10 glass windows would cost \$79 to \$160. With TRANS-KLEER you save a terrific sum! You enjoy amazing fuel savings also! Play safe—order NOW on trial. At this low 1.98 price they're sure to sell out fast. The genuine, original TRANS-KLEER is sold only by mail—not in stores. Enjoy new comfort, feel the difference—even test with a thermometer. Then if not convinced your 1.98 comes back quick. RUSH COUPON TODAY!

THORESEN'S, Dept. 7-K-74

352 Fourth Avenue, New York 10, N. Y.

RUSH.....Rolls Trans-Kleer measuring 108 sq. ft. (10 windows averaging 10.8 sq. ft. each), with Adheso Border on 7 day trial—money back guarantee.

☐ Payment enclosed. Send Prepaid.

☐ Send C.O.D. plus postage.

CHECK AMOUNT DESIRED:

☐ 1 ROLL (108 sq. ft.) for 10 windows—1.98

☐ 2 ROLLS (216 sq. ft.) for 20 windows—3.50

Name.....

Address.....

City.....State.....

(Canadians: save tariff—order direct from Thoresen Ltd., 45 St. James St. W. Dept. US-74, Montreal 1, P.Q.)

GIVE...the United way



UNITED COMMUNITY CAMPAIGNS

How  
good is  
your  
Vision?

E  
DUC  
ATION

It's no trick to see the big letter on top, but the real test of good vision is being able to read the whole chart

Likewise, many communities see the immediate problem of overcrowded schools. However, it is equally important that they have the vision to plan for tomorrow's needs, too.

Your community must have a long-range plan for its schools—one that looks at least ten years ahead! Because enrollments in all grades will continue to increase during this period, temporary "patchwork" solutions simply postpone and prolong the problem.

For free booklet, "How Can Citizens Help Their Schools," write Better Schools, 2 West 45th Street, New York 36, N. Y.



Better Schools Build  
Better Communities





# DRAFTING

Offers You —  
MORE MONEY  
JOB SECURITY  
EXCITING OPPORTUNITIES  
BIG PAY PROMOTIONS  
PROFESSIONAL STATUS

IT'S EASY — AT HOME — IN YOUR SPARE TIME — PAY AS YOU LEARN

Completed your course and was made Shop Foreman with a 50% increase in salary. W.R.

After completing your course my salary increased from \$350 to \$820 per month. G.T.W.

Was promoted ahead of four other men with a pay increase after completing your course. W.K.A.



**PROFESSIONAL EQUIPMENT Included At No Extra Cost!** Professional instruments, large drafting board, complete set of triangles, lettering guide, french curve, Engineer's scale, T-square, etc.

**ADDITIONAL EXTRA TRAINING IN CLEVELAND AT NO EXTRA COST**  
50 HOURS OF SPECIALIZED, POST-GRADUATE TRAINING FOR TWO WEEKS AT OUR RESIDENT SCHOOL.



**MECHANICAL OR AERONAUTICAL**  
IN JUST A FEW SHORT MONTHS, you too, can be cashing the big pay checks and enjoying an assured future in industry. Never before has there been such a demand for these key men. You can keep your present job while you prepare for a better one. Get into the profession that pays off with success and security. You need no previous experience or training. C.E.I.'s modern, practical courses are prepared especially for Home Study. A Professional Engineer will guide and train you . . . what's more, we help you get a job. Many of our graduates and today's leaders were once in your spot and they used Drafting as their ladder to success. Let a C.E.I. DIPLOMA open the way for you!

MAIL COUPON **TODAY**

CLEVELAND ENGINEERING INSTITUTE  
DEPT. PS-9F  
6300 Euclid Ave. — Cleveland 3, Ohio

☐ Mechanical ☐ Aeronautical

NAME ..... AGE .....

ADDRESS .....

CITY ..... STATE .....

No Obligation — No Salesmen

SEND FOR

**FREE**

SUCCESS BOOK  
AND FREE  
SAMPLE LESSON



**CLEVELAND ENGINEERING INSTITUTE**

RESIDENT and HOME STUDY COURSES



**This Free Book Shows How To Start Your**

"MONEY MAKING FACTS" shows you how to get plenty of saws to file without canvassing, and how you can develop into a general repair shop that will be your own business. This is a helpful, practical book that tells just what to do—send for your free copy today. No salesman will call.

## CASH FILING SAWS

**Start in Spare Time with a FOLEY SAW FILER**

Here is a steady repeat CASH business you can start at home in your basement or garage, while you are working at your regular job. No experience is necessary to turn out perfect cutting saws—"the first saw I sharpened came out 100%. I think the Foley Saw Filer is a marvel of perfection," writes Clarence E. Parsons. Every saw you sharpen will bring you new customers. You will find you can make up to \$3 or \$5 an hour—\$20 to \$30 a week in your spare time as a starter.

With a Foley Saw Filer you can file all hand saws, also band and cross-cut circular saws. It is easy to operate—simple adjustments—no eye-strain. Patented jointing principle evens up all irregular teeth and makes an old saw cut just like new.



**Own Cash Business**

**FOLEY MFG. CO., 919-6 Foley Bldg. Minneapolis 18, Minn.**

Send me free book "MONEY MAKING FACTS."

Name.....

Address.....

City..... State.....



# Learn ELECTRIC APPLIANCE REPAIR IN YOUR SPARE TIME AT HOME



## START YOUR OWN BUSINESS

WITH A POTENTIAL MARKET OF 50,000,000 CUSTOMERS

New shop-method, home training system gives you electrical know-how that used to take years to learn. Learn at home by building valuable testing kits, repairing your own and neighbors' appliances. It is not unusual for appliance repairmen to charge on the basis of \$5.00-\$6.00 an hour.

**FREE ILLUSTRATED BOOK**  
Shows you how you learn every phase of electrical appliance. How to make money while you learn. Write today for your FREE copy.

**CHRISTY TRADES SCHOOL**  
Dept. D-6701  
4804 North Kedzie Ave., Chicago 25

**ONE BUSINESS THAT IS NOT AFFECTED BY STRIKES, DEPRESSIONS OR POLITICS**

## Can You Equal This Home for \$3469



**Shipped Direct from Our Mill**

**Act Now!** Save 30% to 40% on Your New Home

You can save several thousand dollars when you build a Liberty Home! Buy direct from our mill at our low, factory, freight-paid price. We ship you the lumber cut-to-fit, ready to erect. Doors, windows, roofing, paint, glass, hardware, nails, etc., all included in the price. Plans furnished—also complete building instructions. No wonder our customers write that we saved them 30% to 40%. Easy terms—monthly payments. Architecturally approved construction. (Not prefabricated.) **We Pay Freight.**

**Handsome Big CATALOGUE**  
Pictures of exciting new homes in color at money saving prices.  
**SEND 25c TODAY**

**LEWIS MANUFACTURING CO.**  
1369 Lafayette Bay City, Mich.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_



## 51 YEARS 3 generations BLATT family-famous in TIRES

**FREE** This pictured tire ash tray given with 2 or more tires!

**GOOD YEAR** **Firestone** **GOODRICH, U.S., ATLAS, GENERAL, LEE & others.**  
Fine Hi-Grade Family-Safe Tires Worn Slightly

**ADVERTISED ELSEWHERE AT \$7.25 TO \$8. EACH**  
12 MONTHS WRITTEN GUAR. BOND WITH EVERY TIRE & TUBE FREE

**SPECIAL—TAKE 20% OFF EVERY TIRE IN THIS AD**  
A TIRE FREE with every 2 or More 4-Ply Black Car Tires

600-16 \$6.46	670-15 \$6.66	600-16 (6) \$6.35	650-20 \$11.20
650-16 6.46	710-15 6.66	650-16 (6) 6.40	700-20 12.60
700-16 6.66	760-15 6.76	700-16 (6) 7.65	750-20 11.45
640-15 6.46	800-15 6.86	700-15 (6) 8.60	825-20 19.45
700-15 6.66	820-15 6.96	750-16 7.40	900-20 20.00
650-15 6.66	475-19 6.56	700-17 10.80	1000-20 20.00
WHITEWALLS \$1. Extra		750-17 12.80	1100-20 20.00

**Special Offer! GENUINE ADJUSTMENT TIRES** Released by "Co." Adjusters  
(Don't forget to take off your 20% discount)  
Guaranteed to Give NEW TIRE SERVICE & a TUBE FREE  
FREE TIRE with every 2 or more Black 4 Ply Car Tires

600-16 \$9.40	670-15 \$9.50	600-16 (6) \$11.25	650-20 \$15.50
650-16 9.45	710-15 9.60	650-16 (6) 12.51	700-20 20.75
700-16 9.50	760-15 9.90	700-16 (6) 12.52	750-20 26.20
640-15 9.50	800-15 9.95	700-15 (6) 12.53	825-20 28.10
700-15 9.60	820-15 9.95	750-16 12.54	900-20 30.40
650-15 9.60	475-19 9.50	700-17 17.25	1000-20 34.20
WHITEWALLS \$1. Extra		750-17 19.55	1100-20 35.60

**MY GOLDEN RULE GUARANTEE.** I will replace at once, absolutely FREE, (frt. excl.) any defective tire regardless of mileage or months.

**MARVIN BLATT 601** Spring Garden St. Philadelphia, Pa.  
900-16 Military Mud-Grip \$16.09  
Send Ck. or M.O. for fast shipment. I personally select your tires, as if my future depended on it. FOR Phila.

## LEARN PLASTICS

**COMPLETE LOW COST SHOP METHOD HOME TRAINING NOW AVAILABLE**

Get in on Big Money opportunities in Plastic molding, casting, forming, carving, etc. Earn as you learn with Interstate's professionally prepared course. All plastic materials furnished.

**WRITE FOR FREE BOOKLET** **INTERSTATE TRAINING SERVICE**  
DEPT. C-2, PORTLAND 13, OREGON

## YOU BUILD 'EM—WE SELL 'EM

### EARN UP TO \$50.00 A DAY AT HOME

Participate in our national sales and sub-contract plan—spare time—full time. You assemble special luggage and cases for photographers, musicians, salesmen, and all types of portables. We supply complete instructions—materials—tools—everything. No previous experience necessary. Free details. Abarsl Cascraft, Dept. CK, 807 W. Sunset Blvd., Los Angeles 12, Calif.

## IT'S EASY... MAKE MONEY IN PHOTOGRAPHY

If you are over 17—good pay and fascinating work await you in photography! Start making money quickly in sparetime—step into your own studio or exciting career job. **LEARN-BY-DOING** method trains you at home! Write TODAY for FREE catalog. Also Resident Training. Co-ed. 47th Year. Approved for Veterans.

**NEW YORK INSTITUTE OF PHOTOGRAPHY**  
Dept. 5 10 West 33 Street New York 1, New York  
**47th YEAR**

## GIANT BALLOONS

Biggest & best! Surplus US Govt. (new overage) Neoprene weather target balloons.

**FOR FUN**—Great in backyard, at parties, picnics, fairs. Young & old enjoy 'em!

**FOR ADVERTISING**—Attract big crowds to business openings, civic events, trade shows, exhibitions. Paint 'em with a sales message and they'll pay off for you!

**FOR PROMS**—Makes any high school or college prom more festive. Real cool! Approx. inflated sizes. Cal. res. add sales tax.

3 ft. dia., 49c—5 ft. dia., 99c  
10 ft. dia., \$1.59—13 ft. dia., \$1.95  
Postage paid on prepaid orders.

**VOLUME SALES CO., War Assets Division**  
3930 Sunset Blvd., Dept. P5956, Los Angeles 29, Calif.



## Make Money Manufacturing Concrete Drain Tile



Manufacturers of concrete drain tile are in the driver's seat. Why? Because their basic costs are not burdened by freight, distribution and breakage costs—items which the clay tile people have to pass along. Net results: concrete tile can sell for less, yet show a generous profit.

The market is big—and getting bigger. Not only because of increased farm drainage, but also because drain tile are needed in home building, reclamation projects, highway construction, and many other purposes.

Tile made on the Champion are outstanding in quality—dense, strong, uniform and truly round. All sizes up to 12" diameter. Easy to make, because the Champion Machine is simple, compact, and requires no skilled labor. Business is a low-investment opportunity, with equipment available on terms. Write for catalog.



**W. E. DUNN MFG. CO.**  
521 W. 24th Street, Holland, Mich.



IN CANADA: DUNN MASONRY MACHINERY LIMITED  
972 Dundas Highway, Cooksville, Ont.

## PUMP WATER FAST!

Drains Wash Tubs, Cellars, Cisterns. Famous #7 pumps 2800 gph 700 gph at 95' high, or 2400 gph from 25' well. Sturdy rustproof alloy metal. Six blade impeller.  $\frac{3}{4}$ " inlet,  $\frac{1}{2}$ " outlet. Standard pipe threaded. Uses any  $\frac{1}{4}$  to  $\frac{1}{2}$  H.P. Motor. Will not leak or clog. Iron clad guarantee. Send check, M.O., or sent C.O.D. **\$7.95** M.S.R.

Irrigate, Fill Tanks, Draw Well Water. Heavy duty #8 pumps 1000 gph. 1200 gph. 95' high 5000 gph from 25' well. Rustproof alloy metal. 8 blade impeller. 1" inlet, 1" outlet. Standard pipe threaded Will not leak or clog. Iron clad guarantee. Send check, M.O., or sent C.O.D. **\$11.95** M.S.R.

Free Catalogue—Gear Pumps, Large Centrifugal Pumps, Deep and Shallow Well Pumps, Sump Pumps.

**MOORE MANUFACTURING CO.**  
SWEDESBORO 2, NEW JERSEY

Now—You Can Own and Play a  
Famous Make Italian **ACCORDION**

**Save UP TO 50%**

Choose from famous quality makes at lowest **WHOLESALE** prices...

Get the facts about owning and playing the accordion... it's easy and loads of fun! You order on **NO RISK PLAN... 5 DAYS FREE TRIAL!** Save up to 50% off regular price. Easy, convenient terms. You choose from the finest and most famous Italian accordion makes for which we are authorized direct factory distributors. **FREE** home study course included. Find out about the fun and profit in store for the accordion owner. Rush coupon for big Color Catalog and low Wholesale Prices... yours **FREE**. No obligation. Write **TODAY!** **Accordion Manufacturers & Wholesalers Outlet**  
2003 W. Chicago Ave. Dept. P-96, Chicago 22, Ill.

**5 DAY  
FREE  
TRIAL  
Easy Terms**

**Accordion Manufacturers & Wholesalers Outlet • MAIL COUPON!**  
2003 W. Chicago Ave., Dept. P-96, Chicago 22, Ill.  
Send big **FREE** Color Catalog, best terms, lowest wholesale prices.

NAME.....  
ADDRESS.....  
CITY..... ZONE..... STATE.....

## CLEAN YOUR CARBURETOR

### Feel the difference!



An important part of your car's Fall checkup... a **GUMOUT**-clean carburetor. **GUMOUT** removes the gum and varnish from your carburetor that cause trouble—waste gas—reduce power.



- Fall, Winter, Spring, Summer... you enjoy greater power, faster starts, use less gas—when you clean your carburetor with **GUMOUT**.
- **GUMOUT** cleans carburetors quickly and easily.
- Saves time and money.
- Just add **GUMOUT** to your gas tank... or ask your service man to run it directly through your carburetor.
- Available at service stations and auto supply stores everywhere.



SEND FOR **FREE**  
46-page  
"CARBURETOR HANDBOOK"

**GUMOUT DIVISION**  
Pennsylvania Refining Company  
2670 Lisbon Road  
Cleveland 4, Ohio



# America has homework to do!



THERE'S PROBABLY a lot about your town that makes you want to brag a bit about it.

But there's one thing you *can't* be proud of. And it's a shame you share with just about every other community in America.

The homes where far too many people live are a disgrace. Slums, semi-slums, housing blight are with you. Fixing them up is the homework to be done.

If your town is like most in the U. S., here's what the figures show: 1 out of every 10 homes are rock-bottom slums. Nearly one-half urgently need basic repairs.

But slums are something that is happening on the other side of town, you may say. The problem isn't mine.

## Slums are YOUR homework

Distance is no barrier against the threat and cost of housing blight.

Your taxes go up because it takes more money for your town to fight the diseases and delinquency and poverty spawned in the slums. The security of your family goes down because the slum is the natural parent of crime.

## Your community . . . your problem!

Everyone has a responsibility toward the town where it's located. Part of it is to support community improvements as any other good citizen would.

Some slums are beyond repair. They must be torn

down and a fresh start made. Others can be made to conform to accepted living standards. So it is up to you to get behind every sound program which seeks to provide adequate housing for all our people.

Civic and individual groups must have business backing . . . *your* firm's backing if they are to succeed.

## Follow the course of Action!

A group of Americans from every walk of life has joined together in a non-profit organization to combat home and community deterioration, A.C.T.I.O.N., the American Council To Improve Our Neighborhoods.

Send today for a free copy of "ACTION." It explains what A.C.T.I.O.N. is and proposes to do. It lists booklets, research, check-lists, and other material which can help you. Address P. O. Box 500, Radio City Station, New York 20, N. Y.



**American Council To Improve Our Neighborhoods**

Copyrighted material



# The POWER TO STOP can save your life!



Once you've tried Bendix\* Power Brakes—and marveled at the difference they make in stopping ease—you'll demand them for your present car, whatever its make. Ask for a test ride today. Car dealers, better garages, service stations and brake shops across the country have cars equipped with Bendix Power Brake Demonstrator Units. When you've seen the difference, *felt* the difference, you'll know they're the finest automotive buy on the market. And get this: Average price—about \$60 (including installation)!

\*REG. U.S. PAT. OFF.

## **Bendix** POWER BRAKES

Bendix Products Division, Bendix Aviation Corp., South Bend, Ind.

**AUTHENTICAST MODELS** of all the tanks that have made world history!



The complete Authenticast line of tanks and military vehicles is one of the most exceptional sets of models ever created. Each model is reproduced from official

government blue-prints and made to exact specifications. Every tiny detail, from tread to turret hatches, is distinctly depicted. All important American, British

German, Russian, and Japanese tanks are included. 78 DIFFERENT MODELS SCALE 1 INCH TO 108 INCHES Send now for complete catalogue 35¢

**NO FINER MODELS ANYWHERE!**

Authenticast COMET METAL PRODUCTS CO., INC. RICHMOND HILL 18, NEW YORK

**250 POWER . . . .**



**Complete Telescope Lens Kit**

**only \$3.49** postpaid

Conquer Space, Explore the Universe, Planets, Moon craters, New Stars, etc. Complete Lens Kit consists of 80 inch focal length ground and polished objective lens, eyepiece lenses for 50 POWER, 100 POWER, 150 POWER, 200 POWER, 250 POWER, and all necessary lens fittings. Easy to make from simple step by step instructions. (Tripod and mount not included.) Money back guarantee.

**BUSSE SALES CO., Hartford, Conn., Dept. PS-47**



**NEW! RECLAMO**  
ELECTRICALLY HEATED  
Oil RE-REFINING Filter

**Super-Efficient Filtration**  
for TODAY'S Car-Truck-Tractor Engines  
Folder with full details **FREE.**

**RECLAMO MFG. CO.,** 6251 Touhy Ave., Dept. S-96, Chicago 30, Ill.

## STOP THAT DRAFT!

Get  
**DRAFTITE\***  
WEATHERSTRIP  
for your  
house  
doors



At your hardware or building supply dealer. If he's out of stock, we'll mail it to you. Send check or money order:

**StanStrip** — 37¢ a foot any length.

**DraftTite** — \$2.49 a package.

\*TRADEMARK

Get  
**STANSTRIP\***  
WEATHERSTRIP  
for the bottom  
of your  
garage  
door

*The Standard Products Co.*

BOX 678D LEXINGTON, KY.



# DRAFTSMEN



**CASH BIG  
PAY CHECKS!**

**Train Now for  
more success,  
greater security**

**LEARN AT HOME IN SPARE TIME  
(or at college in Chicago)**

Check the want ads in any newspaper—SEE the big-pay opportunities open to you as a draftsman. What's more, you can learn this well-paid, prestige profession at home—quickly, easily! No special talent needed. Get complete, step-by-step Chicago Tech lessons in the mail, spend a few pleasant hours studying each week. In a short time you'll be a well-trained draftsman, ready to take your pick of many good jobs. Act now!



**FREE INFORMATION—MAIL COUPON TODAY!**  
Get **FREE TRIAL LESSON** plus information about C.T.C. practical training. Learn what successful Chicago Tech graduates say about high pay and opportunities in drafting. No charge, or obligation.

## CHICAGO TECHNICAL COLLEGE

**M-224 Tech Bldg., 2000 So. Michigan Ave.  
Chicago 16, Illinois**

Mail me **FREE Lesson** with information about big opportunities in **DRAFTING**.

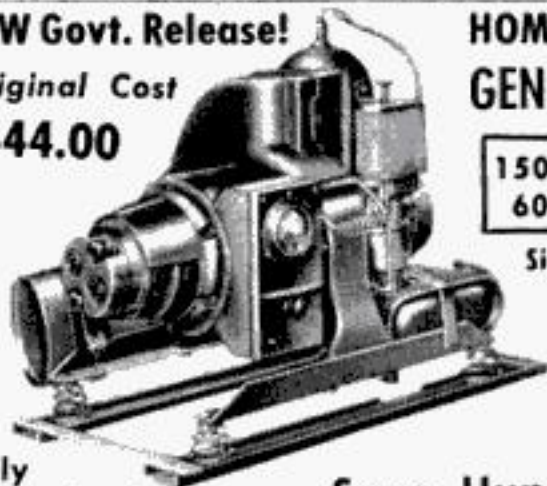
Name.....Age.....

Address.....

City.....Zone.....State.....

**NEW Govt. Release!**

**Original Cost  
\$444.00**



**HOMELITE "Carryable"  
GENERATING PLANT**

**1500 WATT  
60 CYCLE, \$189.00**

Single Phase, 115 Vt., A.C.

**Carrying handles  
for easy portability. Fits easily in  
car trunk**

**Fully  
Guaranteed**

**Save Hundreds of \$\$\$**

**PAYS FOR ITSELF!**

Saves time, labor and money. Provides on-the-spot power for CONSTRUCTION, etc. where none is available or expensive to run in. **LARGE ENOUGH** for Floodlights; Saws; Pumps; and many more labor-saving, heavy-duty machines. Ideal as a stand-by emergency power plant to duplicate house current. Plenty of power for lights, refrigerator, deep freeze, oil burner, radio, etc. Specifications below **CAN'T BE MATCHED** anywhere at this price!

**GENERATOR** 1500-1700 Watts, 115 Volts, 60 cycle, single phase. AC. Overload capacity well above its rated output. Excellent automatic voltage regulation plus Field Rheostat for even closer adjustment. Built-in Volt Meter. Oversize brushes.

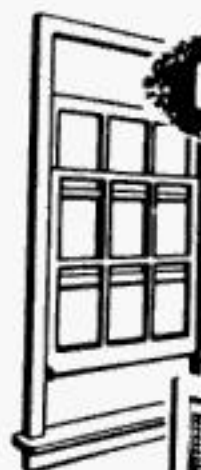
**ENGINE** Famous Homelite single cylinder engine. Air cooled; two cycle. Easy rope start. Dust and rain-proof ignition system. Built-in automatic governor. Foolproof pressure vapor lubrication system. Adjustable jet-type carburetor.

*This Precision power plant has ball and needle bearings throughout and costs only 8c an hour to operate. Satisfaction Guaranteed.*

**SUPPLY LIMITED! IMMEDIATE DELIVERY! ORDER FROM AD  
FREE Catalog of Compressors, Motors and Welders**

**ROBERTS ELECTRIC CO., Dept. PS-489, 849 W. Grand, Chicago 22, Ill.**

48 POPULAR SCIENCE



**NOW!**

**Give Your**

**Windows The 2-Way Look**

By tilting them inwards you not only add to the charm of your Double-hung windows but you can get to the outside of them without stretching, without ladders and without risking dangerous falls. Both sashes can be tilted individually into the room without removing screens, storm sash, shades or blinds.

Think how much faster, easier—and safer—it would be to clean, glaze and paint window exteriors by doing it comfortably indoors.

Tilting-Window Hardware Sets are all you need to change every wood-sash window in your home, office or factory. Make extra money installing them for your neighbors. All parts are rust-proofed metal of welded construction for greater strength and durability.

Each set is complete with full instructions that make installation easy. Send vertical window measurements taken at inside of frame. Order yours today—Each Set \$11.95 postpaid. Special quantity prices.

Takes  
only a  
few  
minutes

**EDWARDS SALES COMPANY  
8717 Milford Ave. Silver Spring, Md.**

## STUDY TO BE A DOCTOR of Psychology or Metaphysics

Obtain a Ps.D., Ms.D., or Ph.D. Be a Teacher, Lecturer or Accredited Practitioner. Teach others how to achieve Health, Happiness and Contentment. Chartered by State. Correspondence courses only. Write for **FREE** book telling how.

**THE NEOTARIAN FELLOWSHIP**

Desk 5, Pickwick Building

Kansas City 6, Missouri

### FULL SIZE MODEL KITS!



**M. 1  
Carbine**

**\$5.00**

The original kit

For **NEW** illustrated catalog of 9 models send 15c to:

**O'BRIEN GUNCRAFT (C) P.O. BOX 657 MADISON, WIS.**



### Genuine Dupont Plastic NEW FALSE PLATE

From Your Old, Loose Plate **NO IMPRESSIONS NEEDED**  
New, revolutionary Duplication System actually transforms your old, loose, cracked, chipped plate into a new, natural-pink Dupont Plastic Plate with same teeth or new, natural matched teeth. **ONE DAY SERVICE!**

**Only  
\$18.95**

**30-DAY  
MONEY-  
BACK  
TRIAL**

**SEND NO MONEY—** just your name and address for **FREE** details. Save at our low price! Highest prices paid for Dental Gold. **ALL-STATE DENTAL LABORATORIES, 22 W. Madison, Dept. 946, Chicago 2.**



**Loosens Rusted Bolts  
nuts, screws, "frozen" parts!**

**LIQUID WRENCH**

**AT HARDWARE STORES, GARAGES  
SERVICE STATIONS EVERYWHERE**

For information write manufacturer  
**Radiator Specialty Co., Charlotte, N. C.**

## SHORTHAND in

Famous **SPEEDWRITING** shorthand. 120 words per minute. No symbols; no machines; uses ABC's. Easiest to learn, write and transcribe. Lowest cost. 350,000 graduates. For business and Civil Service. Typing available. 33rd year. Write for **FREE** booklet to: **SCHOOL OF**

**6  
WEEKS**

**Speedwriting**  
Dept. 2609-G, 55 W. 42 St., New York 36



# **BIG** 10" x 12" **PROFESSIONAL** **PLASTIC LAMINATING** **HYDRAULIC PRESS**



- 40-ton Pressure Cast Steel Table Press
- Electrically Heated and Water Cooled
- 3 10"x12" Sandwiches in One Operation

## **NEW LARGER PRESS BRINGS BIGGER PROFITS!**

The same press used by large laminating firms, now for home use. Steady hydraulic pressure and one heating-cooling operation assure perfect results. Plaques—book covers—signs bring bigger profits in art and commercial fields. Cash in on the demand for large laminations. Increased output will pay for this professional press in no time. Liberal trade-in on smaller presses. Write for details.

**FREE** Handy scale for computing laminating charges sent to you on request.

**WILLSON & GEVERT HYDRAULIC PRESS CO., Inc.**  
Dept. 124 1369 Lawrence Road, Havertown, Pa.



## **Free! 75 ORIENTALS**

Brought to you from the farthest ends of the earth—these exotic valuable genuine **STAMPS** of the Orient! 75 all-different from Borneo, Siam, China, Japan, Hong Kong, Malaya, Sarawak, Singapore—and other exciting mysterious lands of the Far East. **EXTRA!** Free booklet, Bargain Catalog, other fascinating offers. Send 10c for mailing expenses.

**JAMESTOWN STAMPS, C9PS, JAMESTOWN, N. Y.**

# **HYPNOTISM**

## **Be Popular Amaze Entertain**

Learn to apply Hypnotism and Autosuggestion in short time by training at home, with **GUARANTEED RESULTS—DON'T DELAY.** Write to America's oldest, most famous Hypnotic school for free information—now—today. Sent in plain wrapper.

### **SCHOOL OF APPLIED HYPNOLOGY**

Dept. 29 120 Central Park South N. Y. 19, N. Y.

**MODERN BEAUTY**  
**MODERN USEFULNESS**  
**MODERN IMPROVEMENTS**  
IN A BRAND NEW MODEL OF  
A FAMOUS QUALITY INSTRUMENT  
**HULL AUTO COMPASS**

*Beaconlite*  
ILLUMINATED  
\$6.50

*Streamline*  
NON-ILLUMINATED  
\$4.95

At your dealer's Write for literature  
**HULL MANUFACTURING CO.**  
P. O. Box 246-E9 Warren, Ohio



Sold by  
25,000 stores

## **Home Craftsmen And Do-It-Yourself Fans—**

You're dressed for the job—and neatly, too—when you wear N&W work and leisure clothes. Full line for men and women.



**N&W INDUSTRIES, Inc.** Lynchburg, Virginia  
Jackson, Mississippi



## **"How do you pick a durable paintbrush that'll do an easy, streak-free job?"**

**LEO B. SMITH, Smith Decorating Co., Hammond, Ind.**

"When customers ask my help in choosing paintbrushes, I point out that you judge a brush by its bristles," says Mr. Smith.

"I show my customers that really fine brushes have bristles with long, tapered tips and 'flagged' or split ends. Furthermore, the bristles are of different lengths and are formed to a full head. To demonstrate, I show them a well-made brush with Du Pont TYNEX nylon bristles.

"Brushes with TYNEX nylon bristles come in all sizes, including the handy, narrow widths. What's more, your brush is easy to clean, when it's made with TYNEX, which means you'll be able to use it and re-use it and always get top results.

"When you see the trademark TYNEX on the handle," I tell my customers, "you're sure you're getting the best."

**FREE!** 8-page booklet full of helpful painting tips. Write Du Pont Company, Polychemicals Dept. PS-9, Wilmington 98, Del.

**TYNEX** is the registered trademark for Du Pont nylon bristles



**1. PICK UP MORE PAINT!** Actual photo shows how tapered TYNEX nylon bristles are tipped and flagged for better paint pickup—unsurpassed by any other bristles.

**2. FLOW IT ON SMOOTH AND EVEN!** You can do streak-free work with any paint, varnish or lacquer... on any

surface. And TYNEX bristles last 3 to 5 times longer than natural bristles.

**3. CLEAN IN ANY SOLVENT!** When you're finished, just dip the brush in cleaner recommended by the paint manufacturer. Paint loosens readily, can be thoroughly rinsed out.



BETTER THINGS FOR BETTER LIVING  
...THROUGH CHEMISTRY

SEPTEMBER 1956 49



## WORK FIX-IT WONDERS WITH AMAZING "METAL IN PUTTY FORM"

Ask For The Original



## PLASTIC ALUMINUM

Applied Cold • Hardens into Metal



### HUNDREDS OF MONEY SAVING USES

- Adheres to metal, wood, concrete, glass
- No mixing . . . Ready and easy to use
- Not affected by oil, water or gasoline
- Can be filed, sand papered and painted
- Withstands heat up to 600°F
- Dries metal-hard in three to four hours

**\$1.00**

large 5 1/2 oz. tube  
at all better hard-  
ware, paint and auto  
accessory departments

For Repairing Large Rusted-Out Areas use DURO handy-patch  
The "Self-Soldering" Patch . . . \$1.00

Woodhill Chemical Co., 1393 East 33rd St., Cleveland 14, Ohio  
"Originators and World's Largest Mfrs. of Plastic Metals"

(Send \$1.00 for each product if not available in your area)

## PREPARE FOR BETTER JOB, BIGGER PAY IN SPARE TIME AT HOME

Today, choose the job you want—and prepare for it in time you might otherwise waste. Or if you are already in the work you like best, start training now for quicker promotion and increased pay. During more than 50 years AMERICAN SCHOOL has helped ambitious people to reach higher goals. Check subject that interests you and mail coupon for full information.

AMERICAN SCHOOL, Dept. G646, Drexel at 58th, Chicago 37, Ill.

Without obligation, please send FREE and postpaid, full particulars about the subject checked below.

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Accounting              | <input type="checkbox"/> Contracting              | <input type="checkbox"/> Mechanical Engineering |
| <input type="checkbox"/> Apprenticeship Courses  | <input type="checkbox"/> Diesel Technician        | <input type="checkbox"/> Mechanical Technology  |
| <input type="checkbox"/> Architecture & Building | <input type="checkbox"/> Drafting—Building Trades | <input type="checkbox"/> Metalworking Courses   |
| <input type="checkbox"/> Automotive Technician   | <input type="checkbox"/> Drafting—Machine Trades  | <input type="checkbox"/> Plumbing—Practical     |
| <input type="checkbox"/> Better Foremanship      | <input type="checkbox"/> Electrical Engineering   | <input type="checkbox"/> Private Secretary      |
| <input type="checkbox"/> Blueprint Reading       | <input type="checkbox"/> Electricity—Practical    | <input type="checkbox"/> Retail Merchandising   |
| <input type="checkbox"/> Bookkeeping             | <input type="checkbox"/> Electronics—Industrial   | <input type="checkbox"/> Salesmanship—Outside   |
| <input type="checkbox"/> Business Management     | <input type="checkbox"/> HIGH SCHOOL COURSES      | <input type="checkbox"/> Sheet Metal Work       |
| <input type="checkbox"/> Civil Engineering       | <input type="checkbox"/> Machinists               | <input type="checkbox"/> Tool Making            |

NAME..... OCCUPATION.....  
HOME ADDRESS..... AGE.....  
CITY..... STATE.....  
Canadians: Write American School, Dept. G646, 6083 Sherbrooke St. W., Montreal

MAIL COUPON NOW

## SAVE UP TO 74% ON FURNITURE...

Do Your Own



- ★ REPAIR
- ★ BUILDING
- ★ DECORATING
- ★ MODERNIZING
- ★ GLUING
- ★ REFINISHING
- ★ OVERHAULING
- ★ PAINTING
- ★ MAINTENANCE
- ★ REUPHOLSTERING

### SIMPLIFIED DETAILS IN THIS BOOK

With "How to Build and Repair Your Own Furniture", big 256-page "how-to" book, you'll be able to own that furniture you've always wanted—and make your present furniture look brand-new! Popular Science Editors have poured all their knowledge and skills of home furnishing into one great book written especially for men who want to furnish their homes handsomely—at little cost! Detailed, easy-to-follow photos and directions make it easy!

### BUILD FURNITURE FOR EVERY ROOM IN YOUR HOUSE!

You can make coffee tables, chairs, desks, lamps, bookcases, kitchen equipment, consoles, cabinets, children's furniture, plastic furniture, cabinets—for all types of decorating—period or modern! Most of the 163 simplified projects can be done with *simple tools* found in any home!

### SEND NO MONEY NOW!

Just mail coupon below with your name and address and pay postman the low, *low* price of \$2.49 (plus postage) on delivery. After 7 days free trial, if not satisfied, return book for money back. But hurry, supply is limited!

### MAIL FREE-TRIAL ORDER FORM TODAY!

POPULAR SCIENCE PUBLISHING CO., Dept. 956  
353 Fourth Avenue, New York 10, N. Y.

Please rush my copy of "How to Build and Repair Your Own Furniture" in edition checked below. When postman delivers my copy, I'll pay low price indicated, plus postage. If not completely satisfied, I may return book within 7 days for full refund.

☐ Regular Edition, bound in handsome Linen Finish Kivar, Only \$2.49 #96

☐ Deluxe Edition, Stamped in Silver Color, bound in Red Duotone Kivar, Only \$2.99 #7017

NAME..... (Please print plainly)

ADDRESS.....

CITY & ZONE..... STATE.....

☐ Check here if you remit now. We pay postage. Same return guarantee.



## AIRPLANE RADIO CALLS! VHF RECEIVER WITH 200 MILE RECEPTION ON BUILT- IN ANTENNA

### AIR-O-EAR

**\$79<sup>95</sup>** Model 710-WN  
complete postpaid,  
money-back guarantee.



**LISTEN TO AIRLINE, AIR FORCE AND PRIVATE PLANES  
IN FLIGHT RIGHT IN YOUR OWN LIVING ROOM.** Hear  
control towers, flight communications, radar controlled landings, emergency  
broadcasts. Exciting and educational. **Satisfied users:** Flying Tigers,  
Transocean Airlines, Champion Spark Plug, Sun Oil Co., Northeast Airlines, L.A.  
Board of Education, Civil Air Patrol. **AIR-O-EAR** is compact, portable, plugs  
in anywhere. Tunes 108 to 130 MC on built-in antenna. Six tube superheterodyne,  
selenium rectifier, automatic volume control, drift compensations, coaxial tuning  
and 6" oval speaker, ebony cabinet, white calibrations. 7½ x 5 x 4½ inches, 5 lbs.

**NO RISK, 10-DAY MONEY-BACK GUARANTEE, ACT NOW!  
... FREE GIFT—"FLIGHT INSTRUCTION MANUAL"**  
111 pages of aircraft broadcast listings, navigation radio, air-traffic control,  
interception, search & rescue, emergency procedures.

**SEND TODAY!** AIR-O-EAR Complete, ready to use, no installation.  
\$79.95 ppd. 10-day money-back guarantee. \$5 deposit on C.O.D.

**NOVA-TECH** INC., 1721 SEPULVEDA BLVD.  
MANHATTAN BEACH 2, CALIF.

# LAW...

**STUDY AT HOME** Legally trained men win higher posi-  
tions and bigger success in business  
and public life. Greater opportunities now than ever before.  
**More Ability: More Prestige: More Money** We guide you  
can train at home during spare time. Degree of LL.B. We furnish all  
text material, including 14-volume Law Library. Low cost, easy  
terms. Get our valuable "Law Training for Leadership" and "Evi-  
dence" books FREE. Send NOW.  
**LASALLE EXTENSION UNIVERSITY, 417 South Dearborn Street**  
**A Correspondence Institution Dept. 983L Chicago 5, Ill.**

## ★ WORK FOR UNCLE SAM ★

**U. S. GOV'T. JOBS! AS HIGH AS \$4,525.00 YEAR TO  
START.** Men, women, 18-55. Experience often unnecessary.  
Write immediately for **FREE 36-PAGE BOOK** with list of  
many positions, salaries, sample tests, and full particulars  
telling how to qualify for them. (Not Gov't. Controlled)

**Franklin Institute, Dept. X-90, Rochester 4, N. Y.**

## OWN a Business



If employed, start part time. Alert dealers  
can gross \$5 hourly profit on own service plus  
\$3 on EACH serviceman. Clean, revive, moth-  
proof rugs & upholstery on location. No shop  
needed. Services nationally advertised. Repeat  
customers. Easy to learn. We locally train and  
assist you. Quickly established. Easy terms.  
Send today for **FREE** booklet. No obligation.

**DURACLEAN CO., 6-189 Duraclean Bldg., Deerfield, Ill.**

## A POSTCARD CAN PUT YOU IN A FINE BUSINESS!

### Rush Card Today for FREE Selling Outfit!

Get into a profitable business without spending  
1c! Rush postcard for powerful **FREE** Sales Out-  
fit that makes it easy to take orders for Mason's  
fast-selling line, including warm insulated  
Jackets, Boots, featuring Air-Cushion Inner-  
soles—over 190 dress, sport and work styles  
for men, women! Friends, people where you  
work, buy fast—pay you big profits. Just 2 com-  
bination shoe-jacket sales a day pay you up to  
\$660 monthly **EXTRA CASH!** Folks must buy  
from you—Mason products never sold by stores!  
Start now! Rush postcard for **FREE** Outfit!

**MASON Shoe Mfg. Co. Dept. 340**  
**Chippewa Falls, Wis.**



# HOW TO FIX ANY PART OF ANY CAR

**QUICKLY--EASILY--RIGHT!**



**FREE 7-DAY TRIAL**

**W**HETHER you're a beginner  
or an expert mechanic—  
now you can "breeze through"  
any "fix-it" job from simple carbu-  
retor adjustment to complete overhaul.  
Just look up job in index of **MOTOR'S**  
Brand-New Auto Repair Manual. Fol-  
low simple step-by-step directions,  
clear pictures. Presto—the job is done!

No guesswork! **MOTOR'S MANUAL**  
takes you from "scratch"—shows  
**WHERE** to start, **WHAT** tools to  
use. Covers **EVERY** job on **EVERY** car  
built from 1946 thru 1956!

**Everything You Need to Know  
"Boiled Down" from 160 Official  
Shop Manuals**

**BIG NEW, REVISED, ENLARGED.** Edi-  
tion contains the "meat" from over  
160 **OFFICIAL** shop manuals—simpli-  
fied for YOU. 23,436 essential repair  
specifications on 737 chassis models. Over  
1,000 big pages. More than 2,900  
"this-is-how" pictures, 225,000 service  
and repair facts. Leads beginners every  
step of the way. Time-saving factory re-  
pair procedures for experts. Instructions  
and pictures so clear you CAN'T go  
wrong. Used by U. S. Army and Navy.

**Try Book FREE 7 Days**

**SEND NO MONEY!** Pay postman nothing.  
Make Manual show  
you what it's got. Un-  
less you agree this  
is the greatest time  
and work saver you've  
ever seen—return book  
in 7 days and pay  
nothing. Mail coupon  
today to: **MOTOR—**  
Book Dept., Desk 2J,  
250 W. 55th St., New  
York 19, N. Y.

**Same FREE Offer On MOTOR's  
New Truck Repair Manual**

Covers **EVERY** job on  
**EVERY** popular make  
gasoline and Diesel  
truck made from 1946  
thru 1956. **FREE 7-Day**  
Trial. Check proper box  
in coupon.



**Covers 737 Models  
All These Makes**

Buick	Imperial
Cadillac	Jeep
Chevrolet	Kaiser
Chrysler	Lincoln
Clipper	Mercury
Continental	Nash
Crosley	Oldsmobile
De Soto	Packard
Dodge	Plymouth
Ford	Pontiac
Frazer	Rambler
Henry J	Studebaker
Hudson	Thunderbird
	Willlys

**MAIL COUPON NOW FOR 7-DAY FREE TRIAL**

**MOTOR BOOK DEPT.**

**Desk 2J, 250 W. 55th St., New York 19, N. Y.**

**Rush to me at once (check box opposite book you want):**

☐ **MOTOR's New AUTO REPAIR MANUAL.** If O.K., I will remit  
\$2 in 7 days, \$2 monthly for 2 months and a final payment of 95c  
(plus 35c delivery charges) one month after that. Otherwise I will  
return the book postpaid in 7 days. (Foreign price, remit \$9 cash  
with order.)

☐ **MOTOR's New TRUCK REPAIR MANUAL.** If O.K., I will  
remit \$2 in 7 days, and \$2 monthly for 3 months, plus 35c  
delivery charges with final payment. Otherwise I will return book  
postpaid in 7 days. (Foreign price, remit \$10 cash with order.)

Print Name..... Age.....

Address.....

City..... State.....

☐ Check box and save 35c delivery charge by enclosing **WITH**  
coupon entire payment of \$6.95 for Auto Repair Manual (or \$8  
for Truck Repair Manual.) Same return-refund privilege.





# PLAY RIGHT AWAY

**ANY INSTRUMENT**

**—even if you don't  
know a single note now!**

NOW it's EASY to learn ANY instrument. No boring exercises. Even if you don't know a single note now, we'll have you playing delightful pieces RIGHT AWAY—right from your FIRST lesson! And properly, BY NOTE. Simple as A-B-C. Make amazing progress. No special "talent" needed. Learn at home in spare time, without a teacher. Only a few cents per lesson. Soon you can play any piece you wish. 900,000 students. (Now in our 58th successful year.)

## FREE 36-PAGE ILLUSTRATED BOOK

—just send this ad, with your name and address filled in below to: U. S. School of Music, Studio 159, Port Washington, N. Y. (No obligation, no salesman will call.)



Name \_\_\_\_\_

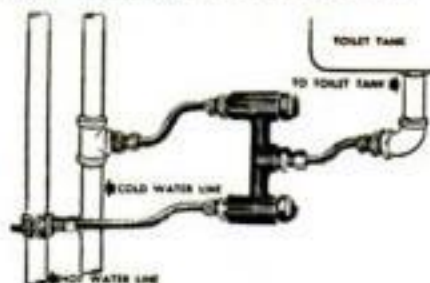
Address \_\_\_\_\_

## STOP TOILET TANK SWEATING BEFORE IT STARTS



### New NO-SWET Valve Cures Toilet Tank Drips

Amazing NO-SWET Valve stops toilet tank dripping by regulating tank water temperature. Prevents condensation. Eliminates drip trays, chenille covers, etc.



**INSTALLS EASILY  
WITH THIS  
HANDY KIT**

### Install NO-SWET Yourself

NO-SWET is a brass valve with bronze spring checks. Mounts in any position. Easily adjusted with screwdriver. Special kit for easy, quick basement installation. Install Now! Stop toilet tank mess! Complete instructions included.

Regular Price  
~~\$19.75~~

Special  
Introductory  
Price

Complete Kit  
**\$16.47**  
post paid

Mail Check or Money Order. (No C.O.D.'s)

**NO-SWET Company** 1848 N. Hubbard St.  
Milwaukee 12, Wis.

## Shrinks Hemorrhoids New Way Without Surgery

**Science Finds Healing Substance That  
Relieves Pain—Shrinks Hemorrhoids**

For the first time science has found a new healing substance with the astonishing ability to shrink hemorrhoids and to relieve pain — without surgery.

In case after case, while gently relieving pain, actual reduction (shrinkage) took place.

Most amazing of all — results were so thorough that sufferers made astonishing statements like "Piles have ceased to be a problem!"

The secret is a new healing substance (Bio-Dyne\*)—discovery of a world-famous research institute.

This substance is now available in suppository or ointment form under the name Preparation H.\* Ask for it at all drug counters—money back guarantee. \*Reg. U. S. Pat. Off.



## I Made \$14,839 in 1 Year SERVICING RADIATORS!

Rex Ryan (Iowa) and hundreds of others earn \$8,000-\$20,000 a year servicing auto-truck-tractor radiators the Inland way. Inland, largest radiator servicing equipment mfr., offers the complete package — equipment, merchandising, "Pays-for-itself" financing, and Free training school for customers.

**WRITE for FREE Radiator Servicing Folder.**

**INLAND MFG. COMPANY** Dept. PS-9  
1108 Jackson St., Omaha 2, Nebr.

America's most  
Muscular Man



## BUILD YOURSELF A "HE-MAN" BODY in only 6 weeks or money back!

**with DAN LURIE BARBELLS**

Fastest surest method known . . .  
special low prices.

50 Lb set \$ 8.48 • 100 Lb set \$13.98

150 Lb set \$20.48 • 200 Lb set \$25.98

Free! If you act now. Complete course,  
68 photos. SEND FOR FREE CATALOG.

All prices F.O.B. Plant

Add'l wts. 13c per lb.

**DAN LURIE BARBELL CO.**

5259 Bristol St., Dept. 670-J, Bklyn. 12, N.Y.



## GROW MINIATURE TREES

Grow authentic, LIVE dwarf trees!  
Fascinating hobby! Profitable Business!

**SEND FOR FREE SEED & INFORMATION!**

**MINIATURE NURSERY CLUB**

Dept. KK 9, P. O. Box 8794  
Los Angeles 8, California

## When Writing to Advertisers Please Mention Popular Science

## See the Greatest Show on Earth with this GIANT ASTRONOMICAL TELESCOPE

**\$15.00**  
FULL PRICE



Delivered ready for use. Has 45X, 75X and 100 power individually mounted eyepieces with brass focusing tube plus sun projector lens for observing sun spots and solar storms. Steel telescope tube 50 in. long. Rigid 6 ft. tripod adjustable to any height. Steel forked mounting with closely machined aluminum tripod head assembly assures extra fine adjustments. This professional type instrument provides full power with clear vision at all times. See the moons of Jupiter, our own moon, planets, milky way, double stars, star clusters, etc. All for only \$15.00 FOB Mattituck. Sent express. COD orders require \$5.00 depo-it. Satisfaction guaranteed. 200X and 400X eyepieces available at \$2.00 ea.

**SUFFOLK SCIENCE SERVICE**  
Dept. TP-9 MATTITUCK, N. Y.



# Art Talent Test FREE!

Find out if you have talent enough for a money-making career in art. Take the simple Art Talent Test that has started thousands toward successful careers. Trained artists are needed for advertising, illustrating, cartooning. Find out whether an art career is for you. Write today for free Talent Test. No obligation.



WRITE FOR YOUR  
FREE COPY TODAY!

**ART INSTRUCTION, INC., STUDIO 9146**  
500 South 4th Street • Minneapolis 15, Minnesota

Please send me your Talent Test, without cost or obligation.  
(PLEASE PRINT)

Name \_\_\_\_\_ AGE \_\_\_\_\_ Phone \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ Zone \_\_\_\_\_

State \_\_\_\_\_ County \_\_\_\_\_ Occupation \_\_\_\_\_

**Cleans  
hard-caked  
brushes**

ACTS INSTANTLY — no long soaking. Leaves  
bristles like new. At paint and hardware stores.

**IMPERIAL Rapid Brush Cleaner**

Wilson-Imperial Co., 121 Chestnut St., Newark 5, N. J.



**NEW BENJAMIN SUPER CO<sub>2</sub> GAS CARBINE — \$15.95\***

HI-LO (2 Stage) Jet Power  
Cal. .177 or .22

RIFLED  
Shoots  
Pellets  
& Darts



Illustrated—Deluxe  
Model Benjamin Super CO<sub>2</sub>  
Carbine Gas Rifle with Custom Stock—\$18.95

IDEAL FOR TARGET AND SMALL  
GAME. SAFE — ECONOMICAL — ACCURATE

CONVENIENT — PRACTICAL — NON TOXIC. EASY TO  
OPERATE — NO PUMPING — NO FLINCHING.

New Benjamin .177 or  
.22 CO<sub>2</sub> ROCKET Gas  
Pistol with HI-LO JET  
POWER.....\$15.00

Get 40 SHOTS from each 10¢ STANDARD  
SIZE CO<sub>2</sub> (Soda) CARTRIDGE. Up to ¾" Pen-  
etration. Ask your Dealer for Demonstration.

**FREE  
Folder**

\*Same as Model Pictured above except with Regular Stock.  
**BENJAMIN AIR RIFLE CO. 852 MARION ST., ST. LOUIS 4, MO., U.S.A.**

## LEARN MEAT CUTTING AT NATIONAL Pay After Graduation



The steady dependable trade of Meat Cutting taught easily in 8 short weeks. YOU LEARN BY DOING under actual meat market conditions in big modern school at Toledo.

For beginners or men with experience. Get a profitable store of your own. Remember, PEOPLE MUST EAT! Big pay jobs. Free employment help. Thousands of successful graduates.

Buying, cutting, percentage, pricing, advertising, selling, etc. A complete retail meat education. National School established 33 years. Get National training NOW. Pay your tuition in easy weekly payments

after you graduate. Send coupon for FREE 52 page school catalog — TODAY. G.I. approved.

**National School of Meat Cutting, Inc.**  
Dept. 51-J, Toledo 4, Ohio

Send me your FREE school catalog on National Training at Toledo in Meat Cutting, Meat Merchandising and Self Service Meats. No obligation. No salesman will call.

Name ..... Age .....

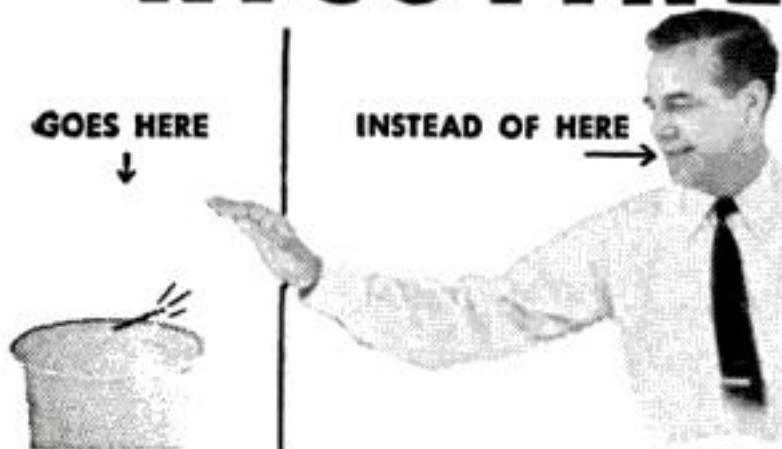
Address .....

City ..... State .....

Approved for training Korean Veterans



# TRAPPED NICOTINE



## WHEN YOU SMOKE A MEDICO TRADE MARK FILTER PIPE

Nicotine, tars, bitter juices and flakes trapped by Medico's scientific filter never reach your mouth! You throw away all the impurities that Medico's filter traps. Insert a fresh filter and your Medico smokes cooler, cleaner, drier, sweeter. That's why Medico is America's fastest selling pipe! Choose a Medico Filter Pipe today.

**MEDICO Crest**  
**\$3.50**

Other Medico Filter Pipes  
\$1.50 to \$12.50

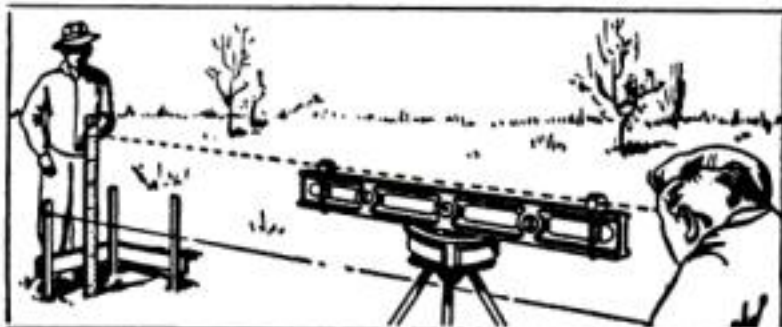
Prices higher outside U. S. A.



When filter is discolored, replace with a fresh one—10 for 10¢

For Catalog 28, write MEDICO, 18 E. 54th St. N. Y. 22

## A NEW TYPE TRANSIT ... TRANS-A-LEVEL



Does complicated leveling jobs in seconds—yet is small and rugged  
● **LOW IN COST.** Price: \$13.25 postage paid (purchase price does not include level)  
● **ACCURATE.** Performs as well as instruments costing much more  
● **DURABLE.** Steel and iron construction, made to last  
● **SPECIFICATIONS.** Finished in gray hammer-effect enamel to prevent rusting. Peep sights for accurate readings. Folding Tripod. Adjustable legs for rough terrain. Leveling screws for accurate adjustment. No carpenter, brick mason, cement man—anyone desiring to do a true leveling job can afford to be without a TRANS-A-LEVEL. Send in your order today.

TREO CORPORATION

550 N. Coal St., Colchester, Ill.

54 POPULAR SCIENCE



Use my **TESTED SALES PLAN** to make an extra **\$50.00 every week!**

Just a few hours each week — evenings, Saturdays — can add \$50 to \$100 to your regular income. Be a factory representative for Charles Chester patented Air-Cushion shoes — bring new comfort to friends, neighbors, co-workers — dress, work, leisure shoes for all the family sold only direct from factory to wearer. No investment is required — you make no deliveries, no collections. Just collect deposit from your customers; we do the rest!

### STEADY AUTOMATIC REPEAT BUSINESS

Satisfied customers reorder constantly! CHARLES CHESTER representatives offer more than 140 styles, in a tremendous size range, 1-18, AAA to EEE. No Experience Needed — our tested, proven Sales Plan shows you how! Write today for details and FREE SALES KIT!



AIR-CUSHION SHOES



FREE SALES KIT!

**CHARLES CHESTER SHOE COMPANY**  
216 Foundry St., Brockton, Mass.

## LEARN METALCRAFT and JEWELRY MAKING



Low Cost Home Training Now Available

Make money. Learn profitable skills and arts of decorative metal and jewelry crafts. Course is complete. Professionally prepared. Easy to master. Special tools and materials furnished.

Write for  
Free Booklet

**INTERSTATE TRAINING SERVICE**

DEPT. K-2 PORTLAND 13, OREGON

## CAFE RUN YOUR OWN DINER

I show you how to get started just as I did; where to locate, 7 ways to get capital, money making methods, even how to run a sandwich business right out of your own home with only a few dollars investment. Write for free details.

School of Restaurant Arts, 49-D, Fremont, Ohio

## REAL ESTATE BE A BROKER

**PAYS BIG! SEND FOR FREE, BIG, ILLUSTRATED CATALOG NOW!** Graduates report making substantial incomes. Start and run your own business quickly. Men, women of all ages, learn easily. Course covers Sales, Property Management, Appraising, Loans, Mortgages, and related subjects. **STUDY AT HOME** or in classrooms in leading cities. Diploma awarded. Write TODAY for free book! No obligation.



Approved for World War II and Korean Veterans  
**WEAVER SCHOOL OF REAL ESTATE** (Est. 1936)  
20205 Grand Ave. Kansas City, Mo.

## MEN PAST 40

Troubled with **GETTING UP NIGHTS**, Pains in **BACK**, **HIPS**, **LEGS**, Tiredness  
**Loss of Physical Vigor**

If you have these symptoms then your troubles may be traced to Glandular Dysfunction . . . a constitutional disease. Medicines that give temporary relief will not remove the cause of your trouble. Neglect of Glandular Dysfunction often leads to premature old age and sometimes incurable malignancy.

The past few years men from over 3,000 communities have been successfully treated here at the Excelsior Institute. They have found soothing relief and a new health and zest in life.

The Excelsior Institute, devoted to the treatment of diseases peculiar to older men by **NON-SURGICAL** methods has a **NEW FREE BOOK** that tells how Glandular Dysfunction may be corrected by proven **NON-SURGICAL** treatments. This book may prove of utmost importance in your life. Write today. There is no obligation.

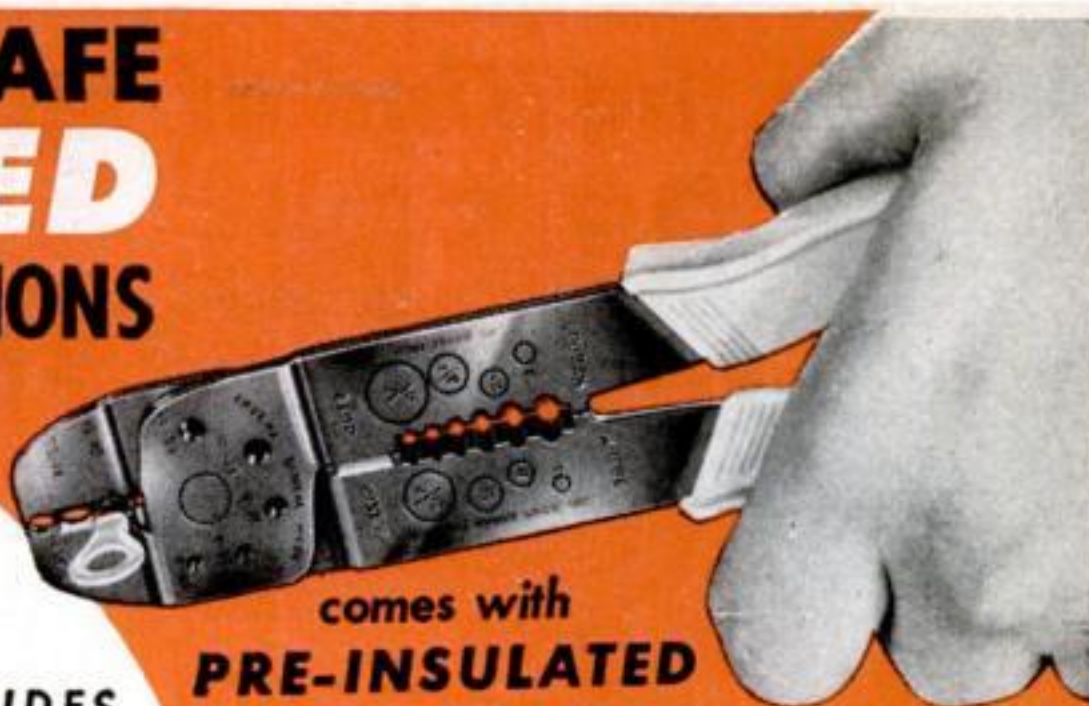
Excelsior Institute, Dept. B531, Excelsior Springs, Mo.



# Make SURE, SAFE INSULATED ELECTRICAL CONNECTIONS

## The New SUPER ~~CLAMP~~ Hand Tool

The ONE Tool for ALL Wire Sizes used in Home Wiring, Appliances, Automobiles.



comes with  
**PRE-INSULATED**

Splices

Connectors

Terminals

**FREE with Each TOOL**

### DOES ALL THESE THINGS BESIDES

**CRIMPS** Solderless Terminals and Connectors without solder or tape for safe connections.

**CUTS** Wire, making clean, sharp cut through Insulation and Conductor.

**STRIPS** Wire sizes #22-#10. Gauges assure proper length for sure, safe crimp.

**SHEARS** Bolts and screws without damaging threads — no filing or hack sawing.

### ORDER DIRECT — USE COUPON

Only  
**\$3.95**  
Post Paid

Satisfaction guaranteed or money back. Send check or money order for \$3.95. (Ohio residents add 12c sales tax.)

T. W. Berger, Inc.  
National Distributor Consumers and Dealers  
**AIRCRAFT-MARINE PRODUCTS, Inc.**  
209S Mariemont Center Bldg., Cincinnati 27, Ohio

T. W. Berger, Inc.  
National Distributor Champ Tool  
209S Mariemont Center Bldg., Cincinnati 27, Ohio  
Send me post paid the new super Champ Hand Tool. I am enclosing \$3.95. (Ohio residents add 12c sales tax.)

☐ check ☐ money order

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

## BRITAINS No. 1 RIFLE NATO CONVERSION ALLOWS RELEASE

ACCURATE, POWERFUL

SMLE No. 1 MARK III

HUNTERS  
**\$29.95**



Pride of British troops throughout Empire today. Big Game hunters from Canadian wilderness to African Congo claim the powerful .303 caliber SMLE is best for all big game. Fastest bolt action in world. All milled parts. Long range sights. 10-shot mag. 25" Bbl. cal. .303. **GUARANTEED EXCELLENT CONDITION** complete with sling and 20 rds. mil. ammo. **FREE.** Addit. Mil. ammo. \$7.50 per 100 rds. **SPORTING AMMO** made by Rem. & Win., sold everywhere. Bayonet: \$1.95. **TO ORDER:** Send check, cash or M.O. \$10 for C.O.D. Calif. resid. add 4% state tax.

CANADIANS: Order (without red tape) rifles Spd. from G. K. Harper, Ltd., 16 Bayswater, Ottawa.

**GOLDEN STATE ARMS CORP.** 219 Armory Bldg., 1165 E. Colorado St., Pasadena 1, Calif.

Get  
into..

# PLASTIC LAMINATING AT HOME!

Make \$20 to \$30 a Day by..  
**MAGIC MAIL PLAN!**



**THIS MAN ..**  
...is taking out of the machine a Plastic Sealing Job — ordered by mail — only 11c in material cost brings back \$2.58 in cash by mail. Capacity of machine: **\$25.00 profit per hour of operation.**

Get **ORDERS** and **CASH** from your mailman — do work in **SPARE TIME** at home — or expand into **FULL TIME** business. Send coupon for Free facts about the newest and most fascinating of all home operated businesses. For the first time a simplified machine brings the fabulous profits of **Plastic Sealing** and **Plastic Laminating** within the reach of the small operator. Anyone can learn to operate the machine with a few minutes practice — then with our **Magic Mail Plan** can get mail orders pouring in daily with cash in every envelope. **No canvassing — no selling.** We even

supply the circulars you mail to bring back cash and orders. Don't waste a minute. Rush your name. We'll send you **FREE** and postpaid, pictures, prices, details, and all the facts you need to start. Mail coupon or send name on postcard. No charge. **Warner Electric Co., 1512 Jarvis Av., Dept. L-99, Chicago 26, Ill.**

### Make Thousands of Beautiful Art Creations

**COSTUME JEWELRY • CIGARETTE BOXES TRAYS • CANDLESTICKS • COASTERS LAMP BASES • BOOK ENDS...ALL IN SPARKLING COLORED PLASTIC**



**WARNER ELECTRIC CO., 1512 Jarvis Av. Dept. L-99, Chicago 26, Ill.**

At no cost to me, please rush complete details postage prepaid. I am under no obligation.

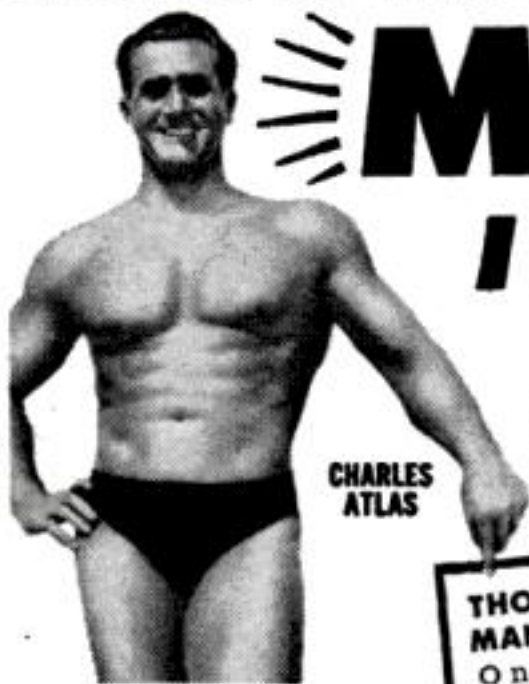
Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

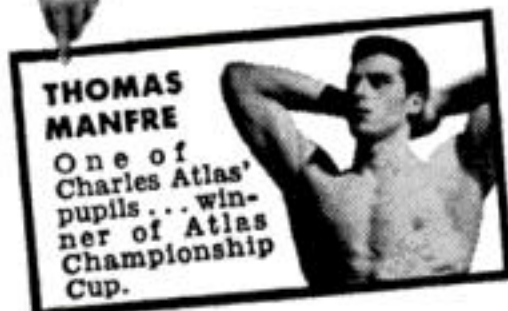


# Here's the Kind of MEN I Build!



CHARLES  
ATLAS

Will You Let Me  
**PROVE I Can Make  
YOU a New Man?**



THOMAS  
MANFRE  
One of  
Charles Atlas'  
pupils... win-  
ner of Atlas  
Championship  
Cup.

I don't care how old or young you are, or how ashamed of your present physical condition you may be. Just give me 15 minutes a day, and I'll start giving you **RESULTS** that you can SEE, FEEL, and MEASURE with a tape! I can broaden your shoulders, strengthen your back, develop your whole muscular system **INSIDE** and **OUTSIDE**! I can add inches to your chest... give you a vise-like grip... make your legs powerful... help

ify your friends will be amazed! **WRITE FOR FREE BOOK.** 32 pages about how "Dynamic Tension" changed me from 97-lb. weakling into "World's Most Perfectly Developed Man"—and what I'll prove it can do for YOU. **CHARLES ATLAS Dept. 19, 115 E. 23rd Street, New York 10, N.Y.**



**CHARLES ATLAS, Dept. 19, 115 East 23rd St., New York 10, N.Y.** Send me—absolutely **FREE**—a copy of your famous book, "Everlasting Health and Strength"—32 pages, crammed with photos and valuable advice. No obligation. (Please print)

Name \_\_\_\_\_ Age \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

FREE BOOK

## TRAINED MEN NEEDED!

**BIG PAY!—GOOD FUTURE!**

- |                                 |                                      |
|---------------------------------|--------------------------------------|
| <input type="checkbox"/> DIESEL | <input type="checkbox"/> ELECTRONICS |
| <input type="checkbox"/> AUTO   | <input type="checkbox"/> AUTOMATION  |

**NEVER BEFORE** has the opportunity been so good for the properly trained mechanic and technician to step into **BIG PAY POSITIONS** with rapid advancement and future security virtually assured.

**YOUR SUCCESS** depends on the quality of training you receive... and the reputation of the school you attend.

**YOUR GUARANTEE** we are giving the best in mechanical and technical training is proved by the fact... we have a waiting list of good pay positions for our graduates, with leading companies throughout the United States.

**RESIDENT SHOP TRAINING** is easier and costs less than you may think! We provide you with housing and part-time jobs while in school, plus free nation-wide placement service for graduates.

Check subject above in which you are interested and mail for

FREE BOOKLET

**BAILEY**  
Technical Schools

Veteran Approved

1650 S. Grand, St. Louis 4, Mo.

Your Future  
IN  
ELECTRONICS  
AND  
AUTOMATION

Your Future  
in...  
DIESEL and  
AUTO  
MECHANICS

Name \_\_\_\_\_ Age \_\_\_\_\_  
Street \_\_\_\_\_  
Town \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## SEND FOR Free Record

START SPEAKING  
**FRENCH**  
OR  
**SPANISH** **ALMOST OVERNIGHT!**

**HERE'S** the easiest way to learn **FRENCH, SPANISH, Russian, German, Italian, Japanese or Brazilian.** Listen to **FREE** 2-sided non-breakable record. Let your eyes follow words in **FREE** sample lesson. Almost at once you'll be chatting in a new language with a perfect accent! That's all you hear! No dull, tedious work. Just listen—imitate! It's that easy! Offer may end soon. Rush 25c to help cover cost of special packaging, shipping. State language you want. We'll also send free information on full Cortina course. **CORTINA ACADEMY, Dept. 129, 136 W. 52nd St., New York 19.**



make your own **Gems** **32.50**

The Gem Maker comes complete with all necessary equipment, including a super-charged diamond blade for sawing, and all wheels for grinding, shaping and polishing; also complete instructions. The complete equipment as shown less motor and belt, for only \$32.50. f.o.b., Burlington, Wisconsin. Write today for information and literature.

**B & I MANUFACTURING CO.**  
Dept. S, Burlington, Wis.



Also Eshelman  
2 Passenger  
**SPORT &  
GOLF Cars**  
Fraction of  
the costs of  
most other  
cars.  
4 Times More  
Gas Mileage

**ESHELMAN TRACTORS** **LOW AS \$99**

Plows • Saws • Cultivates • Dozer  
• Harrows • Snow  
• Plovers • Rolls  
• Hauls • Mows  
• Tills



Eshelman Tractors, Tillers, Riding Rotary Mowers for Better Lawns & Gardens. Adv't. in **GOOD HOUSEKEEPING.** Thousands of satisfied users. Write for Free Literature & Rider Agent Plan. **Dept. R-49, ESHELMAN, 109 Light St., Balto. 1, Md.**

## ARTHRITIS—RHEUMATISM VITAL FACTS EXPLAINED

**FREE DESCRIPTIVE BOOK**

How crippling deformities may be avoided. This amazing **FREE BOOK** explains why ordinary methods give only temporary relief—if that. Describes a drugless method of treatment successfully applied in thousands of cases. Write for this 36-page **FREE BOOK** today. No obligation.

**BALL CLINIC, DEPT. 36, EXCELSIOR SPRINGS, MO.**

## FIND HIDDEN RICHES!

NOW—find buried treasure, gold, silver, and metal objects, with sensational 3½-lb. locator—**GOLDAK'S "FIND-IT"**... only \$49.50 complete with earphones, batteries, instructions.



Manufacturers of metal detection devices since 1933.

Write for **FREE** literature full line metal, mineral locators; geiger and scintillation counters.

**GOLDAK CO. 1544-9 W. Glenoaks Blvd., Glendale, Calif.**

## FOR BIG MEN ONLY!



SEND  
FOR  
FREE  
CATALOG

**SIZES 10 to 16** **WIDTHS AAA to EEE**

We **SPECIALIZE** in large sizes only—sizes 10 to 16; widths AAA to EEE. Casuals; Wing Tips; Hand-Sewn Moc-casins; Cordovans; Dress Oxfords; Work Shoes; Sox; Slippers; Rub-bers. Enjoy the finest in fit, comfort, style at amazingly low cost. Mail only. Write **TODAY** for **FREE** Style Book!

**KING-SIZE, INC.**  
893 Brockton, Mass.



Not Satisfied With Your Present Earnings?

Investigate

## This NEW 2 in 1 BUSINESS OPPORTUNITY

- Popular, Money-Making HOT DRINK and HOT SOUP Venders
- Handle Either or Both Types
- We Train You, We Set Up Routes

Eye-catching, easy-to-operate vending machines serve delicious, nationally known Hot Drinks (3) and Piping Hot Soups (5)! Our factory experts set up routes, train you to operate this year-round, big-volume business. NO SELLING! A minimum cash investment of \$1290.00 required. Up to 75% of equipment costs can be financed. Operate full or spare time.

How many machines can you handle? 10 units, doing nat'l 1954 average, would pay approx. \$13-\$16,000 yearly!

Write or wire giving age, address and phone. Details FREE. No obligation!

SUPERIOR DISTRIBUTING CORP., Dept. CF-9  
4555 E. Warren Ave., Denver 22, Colo.



## STUDY INDUSTRIAL DESIGN

You can train at Art Center School in California with practicing professionals for upper-level jobs in INDUSTRIAL DESIGN. Recent graduates have been added to the staff at General Motors, Chrysler, Raymond Loewy, Henry Dreyfuss, etc. Majors in transportation, general product design, structure, community development, packaging, display, 4-year degree course. Learn to combine imaginative design with technical proficiency, coordinate utility and beauty. Stimulating environment. Field trips. Advantages of mild Southern California climate and nearby holiday spots. Accredited, Coed, Placement service. Established 25 years. New terms February, June, September. Catalog.

ART CENTER SCHOOL, Edward J. Adams, Director  
5353 WEST THIRD STREET LOS ANGELES 5, CALIFORNIA

## earn as TAX EXPERT \$15 HOUR

Our students earn as much as \$3,000 in 3 short months preparing income tax returns in spare time — also operate lucrative Business Tax Service yielding steady monthly fees of \$10-\$50 per client, year round. Enjoy professional standing in dignified home-office business. No experience necessary. We train you at home and help you start. Write today for free literature. No agent will call. Approved by N.J. Dept. of Education. UNION INSTITUTE OF TAX TRAINING, 68-70 Hudson St., Hoboken 10M, N.J.

## HE-MAN VOICE!

STRENGTHEN your voice this tested scientific way. Yes—you may now be able to improve the POWER of your speaking and singing voice . . . in the privacy of your own room! Self-training lessons, mostly silent. No music required.

FREE BOOK Write TODAY for Eugene Feuchtinger's great booklet "How to Develop a Successful Voice." It's absolutely FREE! You must state your age. Booklet mailed postpaid in plain wrapper. No salesman will call. Send your name and age RIGHT NOW! Perfect Voice Institute, 210 S. Clinton St., Studio JU-1, Chicago 6, Ill.



## SEWS LEATHER AND TOUGH TEXTILES LIKE A MACHINE

With SPEEDY STITCHER Automatic Sewing Awl, anyone can quickly and skillfully sew or repair anything made of LEATHER, CANVAS, NYLON, PLASTIC, or other heavy materials. Sews firm, even lock-stitches like a machine. Gets into hard-to-reach places. Specially made for heavy duty sewing on LUGGAGE, FOOTWEAR, RUGS, AWNINGS, SAILS, SADDLERY, UPHOLSTERY, OVERALLS, AUTO-TOPS, SPORTS GEAR, and other tough sewing jobs. Here's the handiest tool you'll ever own. Will save you many times its small cost. Comes ready for instant use . . . complete with bobbin of waxed thread and 3 different types of diamond-pointed needles. Easy-to-follow directions will make you an expert in minutes. Extra needles and waxed-thread always available. Save money, send \$1.98 for post-paid delivery. If C.O.D., \$1.98 plus postage. MONEY BACK GUARANTEE.

SPORTSMAN'S POST  
366 Madison Ave., Dept. A-221, New York 17



198  
ONLY

FOR A REAL JOB OR A  
BUSINESS OF YOUR OWN



## LEARN OIL BURNER SERVICING

at home—in your spare time!

### GET THE FACTS FREE!

Let us send you — without obligation — a Sample Lesson plus all the information you'll need to get you started on the road to success in the automatic oil heating field. Let us prove to you that salaries are higher, opportunities greater, advancement quicker in the fast-growing Oil Burner industry.

5 PROGRAMS IN ONE. We offer you a complete and approved training program — available at no other school — prepared with the co-operation of America's leading heating system manufacturers. Covers Installation, Operation, Maintenance and Service plus Electrical Controls, Firebrick Construction and Sheet Metal Fabrication. Even includes a "Special Business" Plan to help you start your own service shop.

START NOW . . . TODAY! Put your spare time to work. Learn a skilled trade. No previous experience or special education required. Earn while learning, doing part-time jobs in your own area. Low tuition. Tools furnished. Send coupon now. No obligation.

MASS. TRADES "Training Thousands since 1936"  
RESIDENT SCHOOL — APPROVED FOR VETS  
LICENSED BY MASS. DEPT. OF EDUCATION

Member — Oil Heat  
Institute of America



Write NOW for  
FREE SAMPLE  
lesson and booklet.  
No obligation. Use  
the coupon below.

MASS. TRADES

161-B High St., Boston 10, Mass.

Please rush FREE booklet and Sample Lesson on OIL BURNER SERVICING. I understand there is no obligation.

Name ..... Age.....

Address .....

City ..... Zone..... State.....

TRAINING AVAILABLE IN CANADA

SEPTEMBER 1956 57





AN IMPORTANT MESSAGE FROM  
THE SECRETARY OF THE TREASURY

## A THREE-WAY PARTNERSHIP THAT BENEFITS EVERYBODY

*How the public, the magazine publishers and the U. S. Government cooperate to help keep the nation's economy growing always stronger*

**A**S a reader of this magazine, the chances are that you belong to a "three-way partnership" dedicated to intelligent saving and a sound economy. For you probably buy United States Savings Bonds. Nearly 40 per cent of the families in America own them. Most Bond-owning families have saved enough in this way to pay for a serious illness, to provide something for old age, to make a down payment on a house or take a long trip. And perhaps most important, these families have the wonderful feeling of security that the ownership and holding of these Bonds bring.

Americans today are buying Savings Bonds at an annual rate of more than \$5,000,000,000. In the time it takes you to read this page, approximately one minute, America will buy \$10,000 worth of Series E and H Bonds!

How, you may ask, did this come about?

It came about through a great program of voluntary cooperation with the Treasury Department on the part of many groups, organizations and citizens. The magazine publishers have from the beginning been among the major supporters of the Bond program. They contribute millions of dollars' worth of advertising space each year.

Full credit for making Bond-buying a national habit is due that "three-way partnership"—the American citizen, the Government, and the volunteer groups, such as the magazine publishers, who bring buyer and seller together through the pages of their publications.

All three partners will profit further by continuing to help increase the nation's saving through the sale of Savings Bonds.

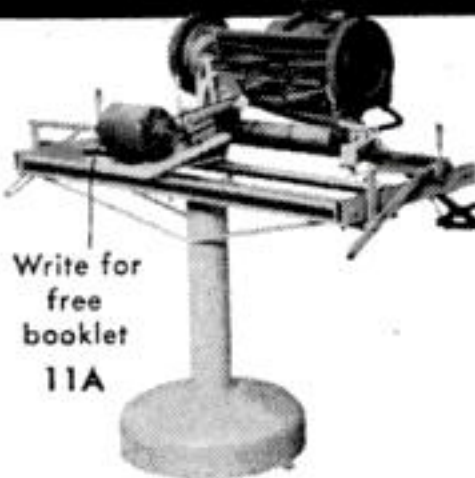
For so effectively promoting the national welfare I wish, on behalf of the Government, to extend to the magazine publishers our most sincere thanks.

*Secretary of the Treasury*





## MORE \$ \$ \$ PER HOUR WITH MODERN IMPROVED LAWNMOWER SHARPENER



Write for  
free  
booklet  
11A

Grinds All Reel  
Type Mowers  
Hollow Grinds or  
Flat Grinds Bed Knives

Engine, oil, or gasoline  
are not removed from  
power mowers. Wheels,  
handle and roller re-  
main in place.  
Moderns precision  
grinding assures re-  
peat business.  
100% Steel Construction

Compare  
Before You Buy

Faster—Easier to  
operate

NO CHANGE IN PRICE FOR OVER 10 YRS.

**\$263.00** Complete with 1/2 H.P. Motor  
f.o.b. Pasadena, Calif.

**MODERN MFG. CO.**

160 N. FAIR OAKS, PASADENA, CALIF.



## CASTING SECRETS REVEALED!

Now you can learn how to make big money  
by casting thousands of perfect plaques, book  
ends, figurines, etc., with X.L. rubber molds.  
NO EXPERIENCE, VERY LITTLE CAPITAL NEEDED  
X.L., Rubber, Pts. \$2.50; Qts. \$4.00 (post-  
age extra). Molds and enough rubber  
for three molds. \$1.50 prepaid. U.S. only.  
Send 25c (refunded with order) for informa-  
tive catalog (40 pages) describing this won-  
derful, exciting Profit-making business.

**HUGE  
PROFITS!  
MORE  
MONEY!**

**PLASTIC ARTS STUDIO** 3403 S. MADISON, DEPT. 3  
MUNCIE, INDIANA

**Learn To MOUNT BIRDS**

**TAN SKINS, MAKE UP FURS**

Be a Taxidermist. We teach you at Home. Mount  
Birds, Animals, Pets, common specimens. Save  
your hunting trophies, decorate home and den.  
Make genuine KROME LEATHER, tan and make up  
furs for sparetime profit. **INVESTIGATE TODAY**  
**FREE BOOK** 48 pages-tells all about it.  
Hunters, get your copy.  
It's Now Free. Send post card. State your AGE.  
IN. W. SCHOOL OF TAXIDERM, DEPT. 2609, Omaha, Nebr.

## FREE! 107 BRITISH COLONY STAMPS

All different from Britain's farflung  
colonial empire. Catalog value \$2.50.  
FREE STAMP MAGAZINE. Approvals.  
Send 10c for handling. Act now!

**NIAGARA STAMP COMPANY**

St. Catharines 766, Ont., Canada



*Let me show you*

## HOW TO SPEAK AND WRITE LIKE A COLLEGE GRADUATE

I have helped thousands of men and women who have not  
had college training in English to become effective speakers,  
writers, and conversationalists. With my new C. I. METHOD,  
you can stop making mistakes, build up your vocabulary,  
speed up your reading, develop writing skill, learn the "secrets"  
of conversation. You don't have to go back to school. Takes  
only 15 minutes a day at home. Costs little, 32-page booklet  
mailed FREE upon request. Send me a card or letter TODAY!

Don Bolander, Career Institute

Dept. 1079, 25 East Jackson, Chicago 4, Illinois

Building?  
Repairing?  
Indoors?  
Outdoors?



Build this Kitchen Base  
and these Wall Cabinets with

## ELMER'S® GLUE-ALL

EASI-BILD® Pattern #201.  
Just trace, saw, assemble.  
Send \$1.00 in cash or money  
order to Elmer's Pattern Dept.,  
P. O. Box 26, Pleasantville,  
N. Y. \*T. M. Reg. Easi-Bild  
Pattern Co., Inc.

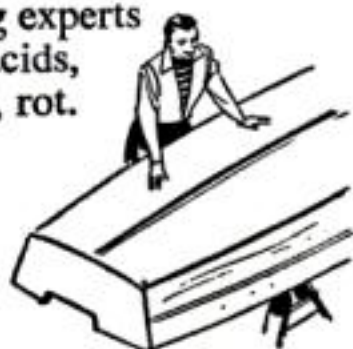


Give your kitchen a modern look! Use  
ELMER'S fast-drying glue to make joints  
strong as wood itself. Won't stain. Easy  
to apply. Ideal for wood, paper, cloth.

Build or repair boats, outdoor furniture with

## ELMER'S® Waterproof Glue

It's the glue that boating experts  
use. Resistant to acids,  
alkalis, fungus, rot.  
Super bond  
is stronger  
than wood  
itself.



Bond plastic laminates to plywood with

## ELMER'S® CONTACT CEMENT

Does professional job quickly  
without clamps, nails, presses.

Highly resistant to  
heat, water.  
Outperforms other  
contact cements  
in stress  
tests.



At hardware, lumber, paint, marine  
supply dealers. The Borden Company, Chemical Division

IF IT'S **Borden's** IT'S GOT TO BE GOOD

SEPTEMBER 1956 59



# AUTO MECHANICS

Make Big Pay and  
Be a Success in

## CTI TRAINS YOU AT HOME

Think of it: Over 60 million cars and trucks are on the road—over 7 million new ones each year! One-third need heavy repairs. *Mechanics are desperately needed everywhere.* Train for one of these good-pay jobs at home in spare time. CTI Shop-Method training is so practical you can make money in spare time fixing cars. Mail coupon for 2 FREE BOOKS.



**YOU PRACTICE WITH THIS TUNE-UP KIT**  
Only CTI sends you a Compression Tester, Vacuum Gauge and Fuel Pump Tester, and Ignition Timing light, in portable steel case. No extra cost.

### YOU GET TOOLS ALSO

This fine-quality set of mechanic's tools are also yours at no extra cost. Using tools and Tune-Up Kit, you get practice and experience. They'll come in handy when you do spare time repair work for profit.



## MAIL TODAY FOR 2 FREE BOOKS

COMMERCIAL TRADES INSTITUTE  
1400 Greenleaf Ave., Chicago 26

Dept. A-353

Send Auto Mechanics Success Book and Sample Lesson.

Name \_\_\_\_\_ Age \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## LAW FREE BOOK

THE LAW  
TRAINED  
MAN

Write today for a FREE copy of illustrated law book, "THE LAW-TRAINED MAN," which shows how to earn the professional Bachelor of Laws (LL.B.) degree through home study of the famous Blackstone Law Course. All necessary books and lessons provided. Moderate cost; convenient monthly terms. Write for FREE law training book today.

**Blackstone School of Law, 225 N. Michigan Ave.**  
Founded 1890 Dept. 126, Chicago 1, Ill.

## Paint STRIPES with New "PAINT PEN"!

### Straight, Curved or Parallel Lines

Use like a fountain pen with any color paint to stripe furniture, bikes, autos, model planes, toys, linoleum, wall board. Beautiful clean, crisp results every time. Can't clog or smear. Also use with glue, tempera, textile paint or ceramic under glaze. Paints on wood, glass, plastic, metals, fabrics and paper. Tool complete with tip for 1/16" stripe only \$1.25 post-paid. Other complete tools with following tips, 1/64", 1/32", 3/64", 5/64", 3/32", 1/8"—\$1.75 each. Extra tips 90¢ each. Entire kit with tool and 7 tips—\$5. A 1/4" tip only \$1.20 each. C.O.D.'s postage collect.

### New! "DOUBLE-STRIP" 5 Way Combination Model only \$3.25

Double Stripes—one wide and one narrow or two wide or two narrow at the same time.

**FREE** Send postcard for complete information—or ORDER TODAY.

**WENDELL MFG. CO., Dept. 221**  
4234 Lincoln Ave., Chicago 18, Ill.



\$1.25

**DEALERS:** Master Paint Stripping Tool in display cartons of 1 doz. **FAST, PROFITABLE SALES.** Write for new discounts.

**HOME CRAFTSMEN:** New Paint Stripping Tool gives "professional" results every time, simple, easy to use. Send \$1.25 now.

**MANUFACTURERS:** Write today for information about industrial models and production stripping tools.



new **FREE** booklet tells  
how you can  
**ADD almost  
2 INCHES TO  
YOUR HEIGHT**  
with

you  
may  
think  
you're  
TALL  
enough  
but....

Lack of height can hurt your chances for success! So why sell yourself short? "ELEVATORS", amazing height-increasing shoes make you almost 2 INCHES TALLER the instant you put them on. Only you know the secret. But everyone immediately notices the improvement in your appearance.

THE ORIGINAL AND GENUINE  
**ELEVATORS**  
TRADE MARK  
HEIGHT-INCREASING SHOES  
"YOUR PERSONAL PNEUMATIC"  
\* TRADE MARK OF STONE-TARLOW CO., INC.

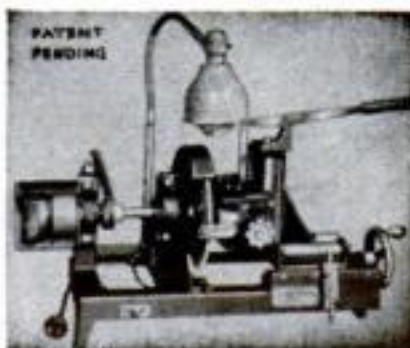
for FREE Booklet and dealer's name write to:  
**STONE-TARLOW CO., INC., DEPT. PS 9, BROCKTON 68, MASS.**

## HYPNOTIZE

AMAZE • ENTERTAIN Using the **3-D MECHANICAL HYPNOTIST**  
HAVE FUN GALORE

Have hours of fascinating fun and excitement by using this pocket-size mechanical apparatus. An amazing hypnotic aid complete with FREE 32 pg book of easy instructions, revealing secrets. Chapters on: Commands, Self-Hypnosis, Instant Hypnosis, Age Regression, FREE 10 DAY TRIAL HYPNOTIC-AIDS CO. • Dept. PS-9 • 30 East 20 St. • New York 3, N. Y.

**MONEY-BACK GUARANTEE only \$1.98 ppd.** Sorry no C.O.D.



## Start a NEW BUSINESS

or Add to your present  
Repair Business

**SHARPEN DULL PIPE WRENCHES  
PIPE TAPS & DIES**

**"GUM" CIRCULAR SAWS**

Also MOTOR DRIVEN ROTARY HONE  
Write for Information

**J. C. MOORE INDUSTRIES**  
Box S 276, Fredonia, Pa.

BUY IT  
GET  
UP TO  
40%  
OFF

**WHOLESALE!**

Start a Buying Service at Home,  
SPARETIME. GET BIG-NAME MERCHANDISE FOR  
SELF AND CLIENTS UP TO 40% LESS THAN REG.  
PRICE. SALES EASY, AS YOU CAN GIVE SIZEABLE  
DISCOUNTS, STILL MAKE FAT COMMISSIONS.  
Post Card brings FREE COPY "The Wholesale Plan"

**FREE!**  
"THE  
WHOLESALE  
PLAN"

**American Buyers Service**

HERTEL STATION, DEPT. PS, BUFFALO 16, N. Y.

**WHEELS WHEELS WHEELS**

7" Disc Wheel	3/4" Tire	3/8" sleeve	45c ea.
8" Disc Wheel	1 1/8" Tire	1/2" sleeve	70c ea.
7" Disc Wheel	1" Tire	1/2" ball bearing	80c ea.
8" Disc Wheel	1 1/8" Tire	1/2" ball bearing	\$1.00 ea.
6" Disc Wheel	1.50 semi-pneum.	Tire 1 1/2" B.B.	\$1.35 ea.
8" Disc Wheel	2" semi-pneum.	T. 1 1/2" B.B.	\$1.50 ea.
10" Disc Wheel	1.75 semi-pneum.	T. 1 1/2" B.B.	\$1.50 ea.
10" Disc Wheel	2.75 semi-pneum.	Tire 1 1/2" B.B.	\$3.50 ea.
12" Disc Wheel	1.75 semi-pneum.	T. 1 1/2" B.B.	\$1.85 ea.

Above wheel prices includes hub cap. Plus Postage. C.O.D.'s accepted.  
AXLES—Sizes 5/16 in., 3/4 in., 1 1/2 in.—Cut to size—End holes drilled.

**UNITED WHEEL STAMPING CO.**  
12131 S. PEORIA STREET PS-9 CHICAGO 43, ILLINOIS

**PEE WEE BATTERYLESS "LIFETIME" RADIO**  
TUBELESS

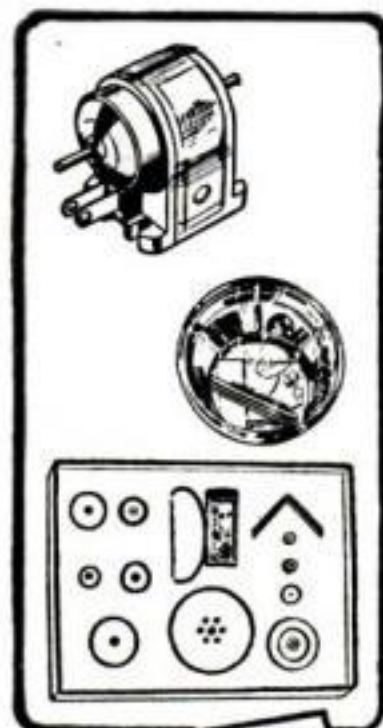


**REALLY WORKS — FOR LIFE!**  
Works WITHOUT TUBES, BATTERIES OR ELECTRICAL PLUG-INS. Will never run down or burn out! World's smallest. SMALLER THAN A PACK OF CIGARETTES! GUARANTEED TO RECEIVE LOCAL RADIO STATIONS ANYTIME—ANYWHERE YOU GO! Sensational new Ferrite Selective Tuner — Perma-Crystal diode. Super SPEAKER—PHONE, durable black and gold plastic case.

**SEND ONLY \$2.00** (bill ck, mo) and pay postman \$4.99 COD postage on arrival or send \$6.99 for postpaid delivery. SENT COMPLETE READY TO LISTEN WITH LIFETIME GUARANTEE. Nothing extra to buy — ever. Available only from:  
**MIDWAY COMPANY Dept. WPS-9 KEARNEY, NEBRASKA**



## ELECTRIC MOTORS—POWER KITS for HOBBY-RESEARCH-INDUSTRY



For quick delivery  
see your local dealer  
— or order direct

The Wilson's line offers complete motorizing service—1½ to 12 volt motors—powerful low speed and variable speed gear trains—parts for all types of drives—complete kits—for driving toys, models, research projects and industrial devices. This list may help solve a gift or technical problem for you.

- No. 8-100 Hi-Drive Motor, 3-6V. . . . . \$2.50
- No. 9-100 Same for 12V. . . . . \$3.00
- \*No. 3-100 Tiny Atom Motor, 1½-3V. . . . . \$2.00
- For higher voltages. . . . . \$2.50
- No. 3113N Tiny Atom motor assembly kit with many acc. . . \$3.50
- \*No. 1300N Small accessories kit \$1.00
- \*No. 3700 Large accessories kit. \$3.00
- No. 4000 DeLuxe accessories kit with motor . . . . . \$5.00
- No. 700 Super-Power kit with motor, speed reducer, all accessories . . . . . \$10.00
- No. 88 Kit of 8 pulleys—2 belts \$2.00
- No. 3000 Vari-speed gear unit. \$4.00
- No. 1049 Gear train with Hi-Drive motor No. 8-100. . . \$5.95
- Same with No. 9-100 Motor. . \$6.45
- \*Item illustrated. Ask for FREE Cat.

All Wilson's motors have Permanent Alnico Magnets.

Remit with order and we pay postage in U.S.A. No C.O.D. Add 3% Sales Tax for delivery in Ohio. Write Dept. PS.



**WILSON'S OF CLEVELAND**

425 Lakeside Ave., N.W. • Cleveland 13, Ohio

## BECOME AN EXPERT IN TRAFFIC and TRANSPORTATION

Traffic men earn \$4,000 to \$10,000 and up. Thousands of firms need experts on rates, tariffs, regulations. We train you thoroughly in spare time at home for executive traffic jobs. Personal training under traffic authorities. Write for free book "Traffic and Transportation."

**LASALLE Extension University, 417 So. Dearborn St.**  
A Correspondence Institution Dept. 983T Chicago 5, Ill.

## GROW ORCHIDS AT HOME

**World's most thrilling hobby—profitable home business.** Single Orchid plant may multiply into many—each as valuable as the first. Successful home grower shows you how! Raise gorgeous Cattleyas, Cymbidiums, Epidendrums, on living-room table. Big-profit orders come from friends, neighbors, florists, etc.—also Mail Orders. Illustrated secrets of the experts in simple "show-how" language AND blooming-size Orchid plants sent at NO RISK. Everything you need to start—for pleasure or profit. FREE—full details—SEND NO MONEY. Write today. **TROPICAL FLOWERLAND, Dept. 29 4622 Wilshire, Los Angeles 5, Calif.**



## DRAW The First Day! NO LESSONS! NO TALENT!

New Amazing Invention—"Magic Art Reproducer." You can draw Your Family, Friends, Anything From REAL LIFE—Like An Artist. Even If You CAN'T DRAW A Straight Line! Anything you want to draw is automatically seen on any sheet of paper thru the "Magic Art Reproducer." Then easily follow the lines of the "picture image" with a pencil for an original "professional looking" drawing. Also reduces or enlarges. SEND NO MONEY! Free 10 Day Trial! Pay Postman on delivery \$1.98 plus postage. Or send only \$1.98 with order and we pay postage. Money Back Guarantee.

**NORTON PRODUCTS, Dept. 4409W, 296 Broadway, N. Y.**

## How To Hold FALSE TEETH

### More Firmly in Place

Do your false teeth annoy and embarrass by slipping, dropping or wobbling when you eat, laugh or talk? Just sprinkle a little FASTEETH on your plates. This alkaline (non-acid) powder holds false teeth more firmly and more comfortably. No gummy, gooey, pasty taste or feeling. Does not sour. Checks "plate odor" (denture breath). Get FASTEETH today, at any drug counter.

## Smooths out automatic transmissions



H-W-R rids your automatic transmission of jar and jerk . . . keeps your engine clean, quiet and smooth . . . restores power and stops hydraulic valve lifter noise. Results guaranteed or *Double-Your-Money-Back!*

HASTINGS MANUFACTURING COMPANY, HASTINGS, MICHIGAN

# HASTINGS

Buy these Hastings Products with confidence:  
Wear Reducer, Casite, Piston Rings,  
Oil Filters, Spark Plugs



# CHEMISTRY



## THE MOST PROFITABLE BUSINESS ON EARTH

Be a **CHEMIST**! One of the really **GREAT** professions! We teach you at home with simplified but thorough lessons. No previous training required. Earn while you learn. This is a **GOLDEN AGE** for those with special knowledge! Diploma awarded. **YOU** can be a specialist in a few months! Here are a few of our most popular courses.

### 1. HOW TO MAKE PRECIOUS SYNTHETIC GEMS!

Make beautiful precious gems! Rubies! Sapphires! Emeralds! etc. Easy-to-build furnace and secret formulas to do the trick! Turn out a pocket-full of precious gems every day. Complete course, \$15.00\*

### 2. HOW TO MAKE ALL FIREWORKS!

With home-made equipment! Skyrockets, bombs, torpedoes, pin-wheels, and hundreds of others! Cost of complete course, \$15.00\*

### 3. HOW TO TURN WATER INTO GAS!

This gadget actually turns water into powerful gas! Can be built from junk parts for less than \$1.00. Complete instructions, only, \$2.00

### 4. HOW TO MAKE PLASTICS & MOULDINGS

The art of converting plastics and compositions into articles of great variety and value! A genuine Gold Mine! Thousands of students have turned this course into rich rewards! Complete course, \$25.00\*

### 5. CHEMICAL PRINTING!

Build three presses for less than \$1.00 that will print 20,000 perfect copies from any original! Not a toy! Complete instructions, \$2.00

### 6. HOW TO MAKE CHEMICAL SPECIALTIES

Manufacture inks, \$2.00. Cosmetics, \$15.00.\* Adhesives, \$2.00. Artificial Bait, \$2.00. Paint, \$5.00. Candy, \$5.00. Perfumes, \$2.00.

### 7. MAJOR COURSE IN PRACTICAL CHEMISTRY!

Best course in U.S.A. Earn diploma. Acquire a dignified profession! With complete laboratory, \$85.00\* Without laboratory, \$50.00\*

### 8. OTHER COURSES

Crime Detection, \$5.00. Horticulture (Florist), \$25.00\*. Electroplating, \$5.00. Taxidermy, \$5.00. Radiation, \$2.00. Junior Chemistry Course, \$36.00\*. May be paid \$5.00 down, balance monthly.

**LITERATURE** describing the above courses and easy payment plans **FREE** on request. Prices shown above are total costs of complete courses! Want a fascinating introduction to the marvels of Chemistry? Just send \$1.00 for Chemistry Outfit and we will include **FREE** one **URANIUM TESTER** and a **CHEMICAL PUZZLE** worth \$2.50, if you can solve it!

**FREE!**  
P.O. BOX 606-B REDWOOD CITY, CALIF.

**SENSATIONAL NEW BENJAMIN SUPER CO<sub>2</sub> ROCKET GAS PISTOL with HI-LO (2 STAGE) JET POWER**

Cal. .177 or .22

**HARD HITTING — ACCURATE — ECONOMICAL — SAFE — CONVENIENT — PRACTICAL — NON TOXIC**

**EASY TO OPERATE — NO PUMPING — NO FLINCHING.** Get 50 SHOTS from each 10¢ STANDARD SIZE CO<sub>2</sub> (Soda) CARTRIDGE. Up to 3/4" penetration RIFLED\* bores.

Benjamin H-C Pellets & Darts. FOR TARGET and SMALL GAME. **FREE FOLDER**

**BENJAMIN AIR RIFLE CO., 852 BARRY ST., ST. LOUIS 4, MO., U. S. A.**

## HOW TO GLUE BETTER!

### 1) USE ROGERS GLUE

2) Be sure parts to be glued are clean, free from old glue etc.

3) Apply a thin, uniform film of glue to parts.

4) Finally, clamp the glued parts tightly together.

**SPECIAL OFFER:** Send only 15 cents for a full-size jar of Rogers Glue and receive, absolutely free,

"Rogers Book of Woodworking Shop Notes" for 1955 and a set of new woodworking plans. Write — Rogers Isinglass & Glue Co., Gloucester, Mass. Ask for Rogers Glue at Your Local Hardware Store.



Over 3.885 lbs. Actual Tensile Strength per Square Inch.

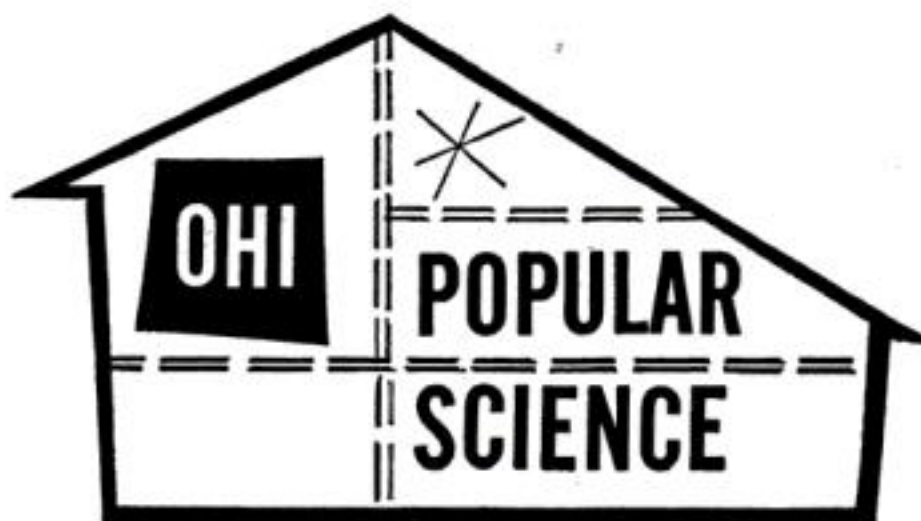
**ROGERS**

the best LIQUID FISH GLUE  
GLOUCESTER, MASS.



## It's the HOT season...

... for Home Improvement. Whether you want to put on a new roof, modernize your kitchen, add a room or even paint—your local lumber and building materials dealer is ready to help you arrange all details. **POPULAR SCIENCE** can also help improve your home, by showing how you can do-it-yourself. Every issue will give you the details and the 'how-to' of home repairs and remodeling. So, enjoy the thrill of a modernized home. Home improvement loans can be easily financed by an FHA-Insured Title I loan.







## INSURED TIRE SERVICE POPULAR BRANDS

**FREE**

INSURANCE POLICY given with each used tire sold. We guarantee the amount of service you pay for.

NOWHERE CAN SUCH QUALITY BE FOUND AT SUCH LOW PRICE!

**SPECIAL!**  
Deduct 10% on orders for two or more used tires

**YOU CAN'T LOSE!!**

Super Quality — Rugged Performance — 6 Months Insured Service			
600x16 \$3.65	670x15 \$3.95	700x16 \$4.45	760x16 \$4.75
650x15 3.85	670x16 4.05	710x15 4.35	820x15 4.95
650x16 4.25	700x15 3.95	760x15 4.45	550x17 4.65

Supreme Quality—Nothing Finer—12 Months Insured Service			
600x16 \$5.25	475x19 \$5.45	700x15(6) \$10.45	700x20 \$12.50
600x16(6) 6.75	640x15 4.95	750x16(8) 15.95	750x20(8) 15.50
650x16 5.75	670x15 5.35	700x17 11.95	750x20(10) 17.50
650x16(6) 7.25	710x15 5.45	750x17 16.45	825x20 21.50
700x16 6.35	760x15 5.95	750x15 10.95	900x20 19.95
750x16(6) 8.45	800x15 6.35	30x5 11.25	1000x20 20.45
550x18 4.95	820x15 6.35	600x20 10.95	1100x20 21.25
550x17 4.75	550x15 5.35	650x20 11.75	1000x22 21.95
650x15 5.25	670x16 5.15	32x6(8) 11.95	1100x22 22.75
700x15 5.35	700x16(6) 10.75	32x6(10) 12.75	1100x24 25.95

Whitewalls \$1.00 extra.

**MIDLAND  
TIRE SALES**

Speedy shipments on Mail Orders. F.O.B. Chicago. Insurance policy sent with each order. Deduct 10% on orders for 2 or more used tires. Send CHECK or MONEY ORDER.—No COD's. 3701 S. Normal, Dept. 55-47, Chicago 9, Ill.

## CABINET MAKING



### LOW COST HOME TRAINING COURSE FOR BEGINNERS & ADVANCED CRAFTSMEN

Make money. Learn skills and secrets of fine woodworking and tool use. Professionally prepared shop method training tells and shows how. Covers everything. Easy to master.

### INTERSTATE TRAINING SERVICE

Write for  
Free Booklet

DEPT. F-2, PORTLAND 13, OREGON

## MEN WANTED

Earn \$100 Per  
Week and up

### AUTO DIESEL MECHANICS

Master a trade with a future—learn Auto-Diesel mechanics in our shops. You learn with tools on real equipment. Earn while you learn. Many of our graduates earn \$100 per week and up. No previous experience necessary. Day and night courses. Approved for veterans. Write for free bulletin.

### NASHVILLE AUTO-DIESEL COLLEGE

226 7th Ave., N., Dept. 41

Nashville 3, Tenn.



## LEARN LOCKSMITHING

Learn this fascinating, profitable trade from experts in your spare time at home! Age or physical handicap no disadvantage. Year around, steady income. Full or part time. Practical, illustrated lessons. You can make money even while learning! All materials and special tools supplied without extra charge.

**LOCKSMITHING INSTITUTE, Dept. PS-81  
15 PARK AVENUE • RUTHERFORD, N. J.**

Lic. by N. J. State Board of Education  
Approved for Veterans



## GIANT FREE CATALOG of OPTICAL BARGAINS

**ASTRONOMICAL TELESCOPE HEADQUARTERS**  
Complete Line of Astronomical Telescope Parts and Assembled Telescopes. Also huge selection of lenses, prisms, war surplus optical instruments, parts and accessories. Telescopes, microscopes, binoculars, etc. Fresnel Lenses for making Solar Furnace. **SEND ONLY \$1.00** for beginner's 10-lens kit and big instruction booklet Stock 2-N. Ask for FREE catalog N.

EDMUND SCIENTIFIC CORP., Barrington, N.J., U.S.A.

## BUILD, FLY HELICOPTER!

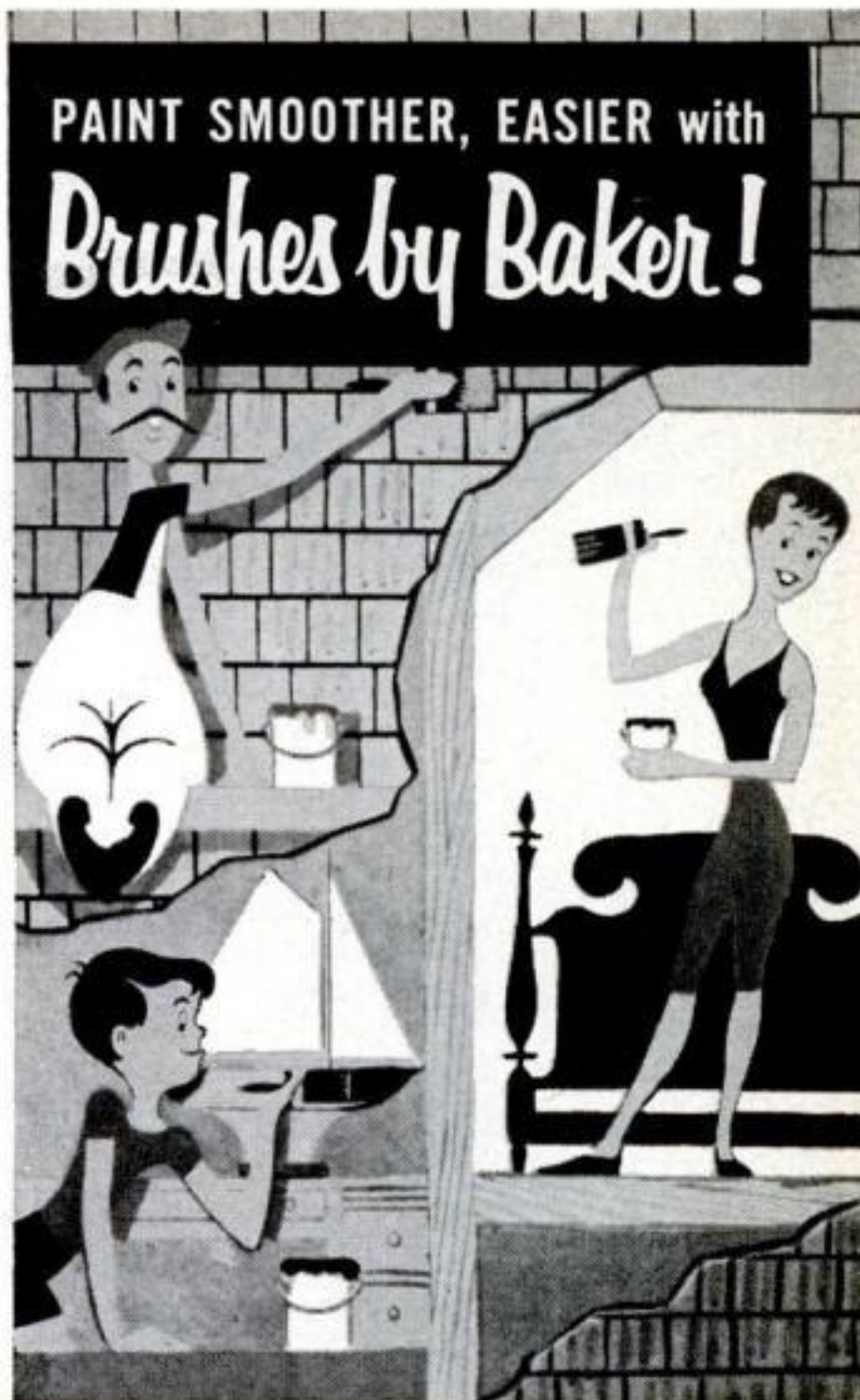


Send  
\$1 or  
\$2  
TODAY!

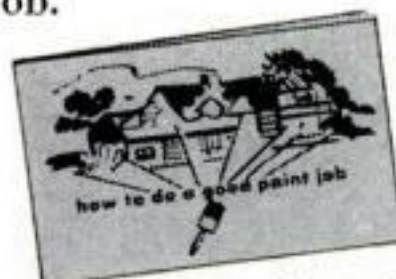
Simple plans and kits now ready for famous Bensen helicopter glider on wheels or floats, also self-propelled Gyro-Copter. Send \$1 for Three-View drawing and specs of Glider, \$2 for 'Copter data.

BENSEN AIRCRAFT CORP., Dept. PS-96  
P. O. Box 2725, Raleigh, N. C.

Name \_\_\_\_\_ Street \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_



Use Baker Brushes and paint easier, faster, better! Enjoy smoother painting, use fewer strokes, get more coverage. Next time you paint choose the right Baker Brush size most practical for the job.



learn  
to paint  
like an  
expert...

Free booklet tells "HOW TO DO A GOOD PAINT JOB." Today, send card to Baker Brush Co., Inc., 83 Grand Street, New York 13.

# BRUSHES BY BAKER

AMERICA'S FINEST PAINTING TOOLS



## REPAIR MUFFLER AND EXHAUST LEAKS in 10 min.



The plastic gas-tight seal sets hard, withstands heat and vibration. Prevents carbon monoxide gas poisoning.

SETS LIKE A WELD — NO TOOLS NEEDED

\$1.69  
per can

*Holt's* GUN-GUM

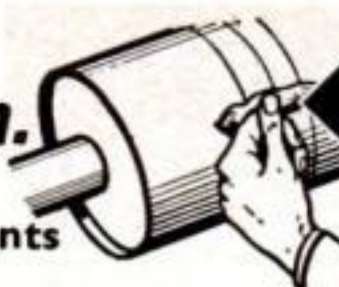
# MUFFLER SEAL

PLASTIC

Write for Full  
DETAILS

See Your Neighborhood Auto Accessory and Parts Replacement Store  
**TREGLOWN CO. INC., FANWOOD 97, N.J.**

\* TRADE MARK REGD. CANADA: 1366 Greene Ave., Montreal 6 (Prices Higher)



*Holt's* HAVE  
THE ANSWER!

### WORN ENGINE BURNING OIL!

Increases miles per gallon!

Restores compression!

Reduces oil bills!

\$4.95 Tube for  
most cars



Forms self-lubricating seal at piston top. Inserted through spark plug holes. Used by millions of motorists. Tested and approved by motoring experts.

## PISTON SEAL



Make \$5.00 an Hour

## CASH PROFIT

The Day You Start!

Start Your Own Business  
at Home... Sharpen  
Household, Garden and  
Shop Tools in Spare Time

Turn your spare time into Big Cash Profits with the new Belsaw Sharp-All. No experience needed to sharpen knives, scissors, shears, ice skates, mower blades, hedge trimmers, axes, chisels and circular saws... just about any household, garden and shop tool. Your own CASH business. No inventory... no calls to make.

Learn how easily you can start your own spare time business. Amazing low cost easy-payment plan. Send postcard for

**FREE BOOK**

**BELSAW SHARP-ALL CO., 707 Field Bldg., Kansas City 11, Mo.**

## Get Paid for Your

# ART

Train at Home This Famous Way

Imagine the thrill of GETTING PAID good money... just for doing something you love! Thousands have artistic ability—and don't realize it—or do anything about it! With proper professional training you can make good money, full time or spare time, free lance or salaried. Do Illustrations, Cartoons, Fashion Art, Lettering, Designs, TV. Learn right at home our famous way. Surprisingly low cost. Individual supervision. 22-pc. art outfit free of extra cost.



**FREE BOOK** describes our easy method. Send for it. No obligation. No salesman will call. Just tear out this ad, fill in your name and address, and mail to: **Washington School of Art, Studio 159, Port Washington, N. Y. (Estab. 1914).** Free Talent Test will come with your Free Book.

Name.....

Address.....

64 POPULAR SCIENCE

**PORTABLE CAR COVER** Heavy Vinyl Plastic

Protect Against RAIN • SUN • DUST

Long-lasting plastic, folds compactly, off and on in a jiffy, sturdy elastic binding



gives extra security. State make, model and year

Send \$6.95 plus 35¢ postage or sent C.O.D. Extra Heavy Plastic Gauge \$8.95 + 45¢ postage.

**BEA SALES, Dept. B-7 125 E. 46th St., New York 17**

## BLADDER 'WEAKNESS'

If worried by "Bladder Weakness" (Getting Up Nights or Bed Wetting, too frequent, burning or itching urination) or Strong Smelling, Cloudy Urine, due to common Kidney and Bladder Irritations, try **CYSTEX** for quick help. 30 years use prove safety for young and old. Ask druggist for **CYSTEX** under money-back guarantee. See how fast you improve.

**HEAVY OILPH-BALL BEARINGS**

PUMPS MILLIONS OF GALS.

695



**CELLAR & SUMP DRAIN** 7500 G.P.H. Pump, Stand, Legs, Coupling, Hardware **\$14.45**

IRRIGATE, SPRAY, DRAIN OR FILL ANYTHING—ANYWHERE! Will not Rust—Clog—or Leak. Patented Seal. Pumps 2800 gph, 420 gph at 75' high or 1600 gph from 25' well. Six blade impeller. Threaded for pipe, 3/4" inlet, 1/2" outlet. Use 1/4 to 3/4 hp motor... 7500 gph 9.95 Heavier 2800 gph 8.95 Heavier 11.95

Check, MO or COD—Money Back Guarantee

FREE Literature—Comparison Charts

**U.A.T. MFG. & ENG. CO. HICKSVILLE 273, NEW YORK**

LOOK!

**A MILLION THRILLS!**

High Power

## BINOCULARS

33 Models: \$9.95 to \$135

Free! Catalog & Book  
"How to Select Binoculars"



FREE  
TRIAL  
PLAN

**BUSHNELL Binoculars**

Dept. P29 43 E. Green  
Pasadena, Calif.

**B.F. Goodrich • Firestone**

# TIRE SALE

AT LESS THAN WHOLESALE!

SAVINGS NEVER LESS THAN 50% UP TO 70% OFF REGULAR PRICES

➔ SEND FOR YOUR FREE CATALOG! ➔

**RELIABLE TIRE CO. • 730 MORGAN BLVD. CAMDEN 4, N. J.**



# BUY DIRECT FROM THE U.S. GOVT!

MACHINERY, TOOLS, PHOTO EQUIPT., FILMS, RAW MATERIALS, AUTOMOTIVE EQUIPT., TYPEWRITERS, OFFICE EQUIPT., RADIO EQUIPT., PAPER, CHEMICALS, CLOTHING, ETC.

**OFTEN AS LOW AS 1¢ ON THE RETAIL DOLLAR!**

BUY DIRECT from the U. S. Govt. surplus of every description: Brand New or used; Single units or in quantity lots and often AT PRACTICALLY GIVEAWAY PRICES! JUST THINK OF IT! It's almost unbelievable but it's A FACT! Thousands of items, millions of dollars worth of merchandise is being sold annually by the U. S. Govt. at bare fractions of their original cost—sometimes far below regular wholesale prices! The very merchandise you want you may be able to buy for PEANUT prices!

## Just Some of the Things You Can buy at Terrific Savings!

Typewriters	Radio Equipt.
Trucks	Paint
Machines	Paper
Tools	Printing
Chemicals	Equipt.
Film	Office
Photo Equipt.	Supplies
Cameras	Buildings
Projectors	Electrical
Boats	Equipt.
Medical supplies	Guns
Foods	Books
Furniture	Air
Clothing	Conditioners
Kitchen Ware	Sporting Goods
	Automobiles

## HOW TO BUY—WHERE TO BUY—WHAT TO DO?

That's ALL you need to know to apply for merchandise buys. Our new folio "BUY DIRECT" tells EVERYTHING you need to know about how to find what the Govt. is offering for sale; how to go about applying for the things you want and—most important of all—WHERE TO WRITE. Hundreds of actual names and addresses are given!

**How to sell surplus for Big Fat Profits!** Folio shows you how to sell your surplus for FAST profits! Gives actual names, addresses of hundreds of possible buyers! FANTASTIC PROFITS often possible! Just 1 good surplus buy can be worth HUNDREDS of dollars! Reg. price of folio \$3.00—Special Limited Time offer—JUST \$2.00 postpaid! (edition strictly limited. RUSH!)

**FREE!** If you order immediately, you'll get special list of special little known sources for possible sensational merchandise buys!

**TOWER PRESS, INC.**

Box 591-MS

Lynn, Mass.

## Just Look at Some Terrific Buys Reported!

Printing Presses, \$75.00! Tape Recorders, \$21.00! TYPEWRITERS \$7.00 each! Sound Movie Projectors, \$14.00! \$8000. Radar sets, \$50.00! Thousands of Other Sensational Buys Sometimes Possible!

TOWER PRESS, INC., Box 591-MS, Lynn, Mass.

Please Rush "BUY DIRECT" folio. \$2.00 enclosed.

Name..... City.....

Address..... State.....

Anvil Brand

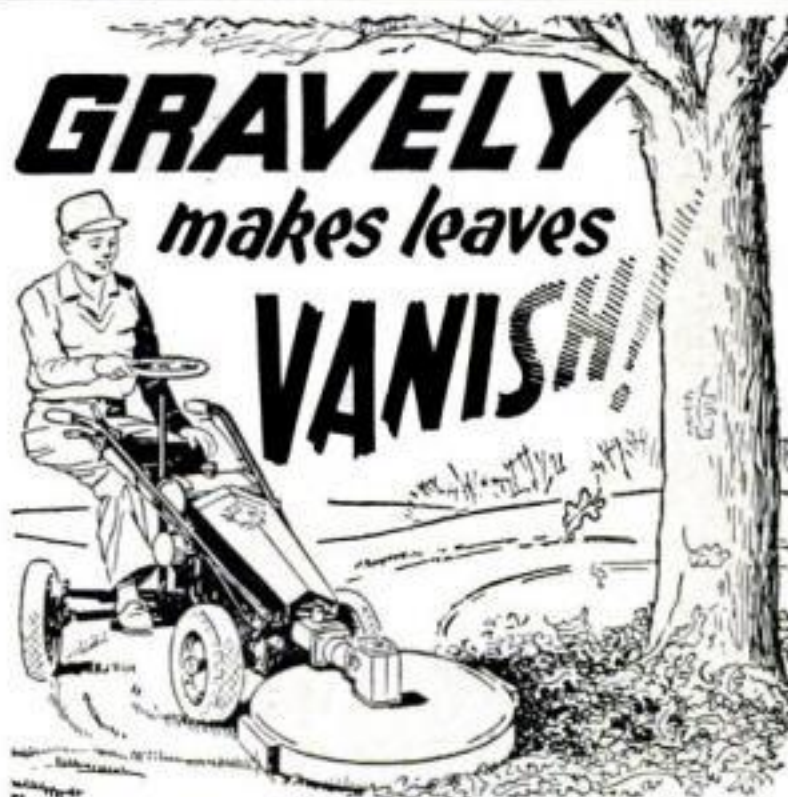


**Anvilwear**  
means  
comfort  
wear

There's extra relish in home chores, shop work and other tasks when you ease into such action clothes as Anvil work wear, Tom Long sportswear and J'nettes for misses. Durable, smart, easy to care for, and so economical in price.



**ANVIL BRAND** factories  
HIGH POINT / NORTH CAROLINA



## ROTARY MOWER—LEAF MULCHER

- Mulches 30" width! . . . Twice the power of ordinary mulchers . . . gets rid of leaves fast! . . . 5-HP.
- New Steering Sulky, New Optional Starter, New Rotary Cultivator — 23 attachments for year-round work. Snowblower, Snow Plow, Chain and Circular Saws for Fall and Winter jobs . . . Finance Plan available!

Write today for FREE 24-page "Power vs Drudgery" Booklet!

**GRAVELY TRACTORS, INC.**  
BOX 984 DUNBAR, W. VA.

**FIELD-TESTED SINCE 1922**



# 1957 ALLIED ELECTRONIC SUPPLY CATALOG

## free!

356  
value-packed  
PAGES



WORLD'S  
LARGEST  
STOCKS

SAVE ON EVERYTHING  
IN ELECTRONICS

Everything for Experimenters, Builders,  
Amateurs, Servicemen, Engineers  
and Hi-Fi Hobbyists

Save on *everything* in Electronics:  
Hi-Fi systems and components;  
latest builders' kits (see the fa-  
mous KNIGHT-KIT line); recorders  
and phono equipment; TV tubes,  
antennas, accessories; Amateur  
station equipment; P.A. systems;  
test instruments; industrial elec-  
tronic supplies—plus *everything*  
in parts, tubes, transistors, tools  
and books. Get more for your  
money—send today for your  
FREE 1957 ALLIED Catalog!

Everything in Electronics  
From One Reliable Source

Our  
36th  
year

Send  
for FREE  
Catalog

ALLIED RADIO

ALLIED RADIO CORP., Dept. 7-J-6  
100 N. Western Ave., Chicago 80, Ill.

☐ Rush FREE 1957 ALLIED 356-Page Catalog

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## Need an extra \$1,000, \$2,000, or more? Make it with an IDEAL LAWNMOWER SHARPENER



There are thousands of lawnmowers in your locality; Average \$1,000 profit per 250 mowers with customer satisfaction and repeat business assured. Provide this essential service with an Ideal® Lawnmower Sharpener, the only machine that grinds the reel to "fit" the bed knife. Compare by any standard. The Ideal, backed by 53 years of experience, costs no more. Write today for complete, free catalog.

The Fate-Root-Heath Company,  
Dept. PS-9 Plymouth, Ohio

## RUPTURED

### BE FREE FROM TRUSS SLAVERY

NOW there is a new modern Non-Surgical treatment that permanently corrects rupture. These Non-Surgical treatments are so certain, that a Lifetime Certificate of Assurance is given. Write today for our New FREE Book that gives facts that may save you painful and expensive surgery, and tells how non-surgically you may again work, live, play and love and enjoy life in the manner you desire. There is no obligation. Excelsior Hernia Clinic Dept. 3705 Excelsior Springs, Mo.

## DITCH-WITCH TRENCHER



Portable DITCH-WITCH digs 4½" or 6" clean, even ditches to 36" depth in all types of soil. Four rugged models. Complete unit — self-propelled. OUTDIGS 8 MEN  
Write for Illustrated Literature

The CHARLES MACHINE WORKS  
637 B Street Perry, Oklahoma

## Find HIDDEN TREASURES

GOLD, SILVER, PRECIOUS METALS with the Famous Model 27 Metal Detector. Lightweight, ultra-sensitive, low cost. None finer. Also GEIGER COUNTERS for uranium and the VIOLITE for tungsten. INFORMATION FREE

THE *Detectron* CORP.  
5528 Vineland Ave., No. Hollywood, Calif.



## FREE BOOK-FREE SERVICE

2,000 BUSINESSES, FARMS, INCOME  
PROPERTIES FOR SALE THROUGHOUT U.S.

State what you want—where you want to locate. We'll advise owners FREE. No commission or fee to pay us. No salesman will call. Write today. U.S. BUYERS' REPORT, 5410 B Wilshire Boulevard, Los Angeles 36, Calif.

## TELEPHONES



### Desk Stand Style

Slightly used but in excellent condition  
Many Valuable Uses

Inter-House Phones House to Barn, etc.  
Loud Speakers Microphones  
Educational Purposes, Toys, etc.

Comes complete, ready to use with wiring diagrams included. **\$2.75** Postpaid in U.S.A.  
Two complete for only \$5.00

TELEPHONE LAMP KIT—with illustrated instructions for making Desk Telephone Lamp including all parts (harp, nipples, push switch, cord, plug, etc.) . . . \$6.50 Ppd. (Shade is not included).

MICROPHONE, Dept. X-3804, 1760 W. Lunt Ave., Chicago 26, Ill.



# The Originators of "DO-IT-YOURSELF" Furniture Finishing

announce  
THE NEW

## SEAL-TITE

"DO-IT-YOURSELF"

## WOOD FINISHING KIT

EVERYTHING YOU NEED IN ONE PACKAGE to do a  
PROFESSIONAL FINISHING JOB ON UNPAINTED FURNITURE

also

- KITCHEN CABINETS
- FLOORS
- WOODWORK
- BAR TOPS
- WOOD PANELING
- and all interior wood surfaces

### NO EXPERIENCE NECESSARY

You can't go wrong with the SEAL-TITE "DO-IT-YOURSELF" Wood Finishing Kit. Everything is provided for the complete operation . . . nothing else to buy . . . and instructions are easy to follow. Stain and Finish are wiped on with a cloth, no brushes required. No dark spots or lap marks to mar work. You can give your furniture a rich and durable finish that will be indistinguishable from highly skilled professional work.

### No. 1. KIT contains 7 BIG ITEMS!

- 1 can "2 in 1" Stain and Sealer (1/4 pint)
- 1 can final Satin-Cote (1/2 pint)
- 2 pieces sandpaper
- 1 roll steel wool
- 1 wipe-on cloth
- 1 brush stick for corners
- 1 container Seal-Tite Dura-Sheen Wax

Finish and complete instructions. Price **\$3.25**

### No. 2. Kit. Same as above but with double quantity of "2 in 1" Stain and Sealer and Satin-Cote. Price **\$4.25**

### SEAL-TITE "2 in 1" Stain and Sealer

AVAILABLE IN 14 BEAUTIFUL WOOD SHADES  
Blonde—Natural Driftwood—Light Oak—Dark Oak  
—Maple—Salem Maple—Provincial Maple—Walnut  
—Mahogany—Dark Mahogany—Cherry—Redwood.  
Stains and Seals in one operation. Dries in 45 minutes to 1 hour ready for finishing coat of Satin-Cote. Excellent for all interior surfaces, floors, woodwork, nude furniture, etc.

**SEAL-TITE SATIN-COTE** dries in 30 minutes to 1 hour. It is a clear interior wood finish, which leaves a semi-gloss hand rubbed effect. Alcohol and water resisting.

### DEALERS WRITE!

Dealers write on company letterhead for details of this and other famous SEAL-TITE products.



SEAL-TITE PRODUCTS CO., 7508 SAN FERNANDO RD.  
SUN VALLEY, CALIF.

At your paint, hardware, unfinished furniture or lumber dealer, or order direct:

To: **SEAL-TITE Products Co., Dept. PS-96,**  
**7508 San Fernando Road, Sun Valley, Calif.**

Please ship me No. 1 Kits @ \$3.25 . . . . .  
No. 2 Kits @ \$4.25 . . . . .

Add 35c postage either size.

☐ Check ☐ Money Order value \$ . . . . . enclosed.

Name . . . . .

Address . . . . .

City . . . . . State . . . . .

Give wood shade desired . . . . .

My favorite dealer is . . . . .



## MULTI-PURPOSE MASTIC

in applicator tube

### 1000 USES

In Home and Shop

NEW WHITE WATERPROOF wall tile adhesive, crack filler, tub sealer, caulking compound. Effectively seals anything indoors or outdoors. Minimum shrinkage, permanent surface. Remains elastic. Quick and easy to apply. No priming. No tools required.

AVAILABLE AT YOUR HARDWARE OR SEND \$1.00. For 1/10 GALLON JUMBO APPLICATOR TUBE, POST PAID. SATISFACTION GUARANTEED.

PLASTIC PRODUCTS COMPANY  
6471 Georgia Ave., Detroit 11, Michigan



These 1000's of  
**NEW** facts  
**NEW** ideas  
**NEW** figures  
**NEW** methods

Step up your  
**MACHINE SHOP I.Q.**  
your key to  
stepped-up pay

**NEW**

**BIGGEST IMPROVEMENT IN 45 YEARS**

New machines, methods, and materials—great metalworking advances—face every man in the field with urgent need for plenty of new know-how. That's why R. Le Grand, American Machinist magazine editor, took a long-famous handbook, completely revised it, brought it up to the minute as

### The NEW AMERICAN MACHINIST'S HANDBOOK

1579 pages • 774 illustrations • 45 sections covering

Covers feeds and speeds, tools, jigs, fixtures, materials, standards, tolerances, methods—thousands of details. Gives you quick, plain, dependable answers. See how it meets your needs. Just mail coupon.

**TRY IT FREE**  
**10 DAYS** Over 4 months to pay

**MACHINING • FORMING • ASSEMBLY • MATERIALS • FINISHING • INSPECTION • FASTENING • DRAFTING • TOOL ENGINEERING • STANDARDS • POWER TRANSMISSION • MATHEMATICS**

**McGRAW-HILL BOOK CO.**  
Dept. PS-9, 327 W. 41 St., N. Y. C. 36

(Offer Good in U.S.A. Only)

Send me Le Grand's New American Machinist's Handbook for 10 days' FREE examination. In 10 days I will send \$3.00 plus few cents for delivery, then \$2.00 monthly until \$11.00 is paid, or return book postpaid.

(Print) Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Employed by \_\_\_\_\_ PS-9



## Superior's New Model 70 UTILITY TESTER® FOR REPAIRING ALL ELECTRICAL APPLIANCES MOTORS • AUTOMOBILES • TV TUBES

As an electrical trouble shooter the Model 70:



- Measures A.C. and D.C. Voltages, A.C. and D.C. Current, Resistances, Leakage, etc.
- Will measure current consumption while the appliance under test is in operation.
- Incorporates a sensitive direct-reading resistance range which will measure all resistances commonly used in electrical appliances, motors, etc.
- Leakage detecting circuit will indicate continuity from zero ohms to 5 megohms (5,000,000 ohms).
- Will test toasters, irons, Broilers, Heating Pads, Clocks, Fans, Vacuum Cleaners, Refrigerators, Lamps, Fluorescents, Fans, Switches, Thermostats, etc.
- Will test all TV tubes for open filaments, inter-element shorts, burned out tubes, etc.

As an Automotive Tester the Model 70 will test:

- Both 6 Volt and 12 Volt Storage Batteries • Generators • Starters • Distributors • Ignition Coils • Regulators • Relays • Circuit Breakers • Cigarette Lighters • Stop Lights • Condensers • Directional Signal Systems • All Lamps and Bulbs • Fuses • Heating Systems • Horns, etc. Also will locate poor grounds, breaks in wiring, poor connections, etc.

Handsome round-cornered molded bakelite case, 3 1/4" x 5 1/2" x 2 1/4". Complete with all test leads. Also included is a 64 page book giving detailed instructions for testing all electrical appliances, automotive equipment, TV tubes, etc. Only **\$15.85**

**SHIPPED ON APPROVAL  
NO MONEY WITH ORDER — NO C. O. D.**

Try it for 10 days before you buy. If completely satisfied then send \$3.85 and pay balance at rate of \$4.00 per month for 3 months — No Interest or Finance Charges Added! If not completely satisfied, return to us, no explanation necessary.

MOSS ELECTRONIC DIST. CO., INC.  
Dept. D-279, 3849 Tenth Ave., New York 34, N.Y.  
Please rush me one Model 70. If satisfactory I agree to pay \$3.85 within 10 days and balance at rate of \$4 per month until total price of \$15.85 plus postage is paid. If not satisfactory, I may return for cancellation of account.  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Some make more, some less; T. THORN reports:

**\$690** gross in single  
**MONTH**  
IN MY OWN BUSINESS!

Start your own business!

Here's YOUR chance to start a money-making, year-'round business of your own and make the success you've dreamed about.

R. O. Donnley took in \$40 in seven hours. O. W. Ware landed a \$750 hotel job. J. S. Corbit grossed \$279.50 his first month. Homes, hotels, offices, clubs, offer you big profit possibilities. Auto upholstery also.

**NO SHOP OR OFFICE NECESSARY.** You clean furniture on customers' premises. No hauling. No high rents. Supplies inexpensive; operate from your home. What you take in is mostly profit.

• If you want to be your own boss—free from layoffs, strikes and bosses, we will help you to start and succeed. Don't delay...read the facts, then decide for yourself.

MAIL COUPON TODAY FOR FREE BOOK

VON SCHRADER MFG. CO.  
911 "D" Pl., Racine, Wisconsin

Without obligation rush your **FREE** booklet about how I can start my own permanent, profitable electric Upholstery Cleaning business.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## NEW! 4-FOOT T-SQUARE!

Dealer inquiries invited

MANY USES!  
LOW PRICE!

Flat right edge of SURE-SQUARE makes accurate pencil or knife guide for instant squaring, marking and measuring plywood, etc.; also for scoring tile, glass and metal. Turned up left edge a useful guide for portable sawing and routing. Many uses, low price make SURE-SQUARE a "must" for the professional or amateur builder. See your dealer or order direct today!

Only  
**\$4.75**  
Postpaid

**3 TOOLS IN ONE!  
DO WORK FASTER, EASIER,  
MORE ACCURATELY!**

Handy new tool combines two-way rulers, T-square and 48" straightedge. Now you can measure, mark, square, cut all standard width building boards with no need for other tools. Use to score tile, glass, sheet metal, too! Rugged 18-gauge steel; choice of red, yellow; ruled in 1/4 inches.

**PIONEER PRODUCTS**

901 Fairview Ave. North Seattle 9, Washington



100  
POUND  
SET  
**\$11.80**

Extra  
Plates Only  
10c Pound

## BARBELLS

140-Pound, CHROME DELUXE Barbell-Dumbbell set only \$18.80.

This is our feature set and is the finest ever manufactured. Training with adjustable weight is the BEST way to keep fit; the ONLY way to develop great strength and a perfect body. As the oldest and best equipped barbell company, BUR gives value and prices no one can equal.

SEND FOR FREE CATALOG.  
**BUR BARBELL CO.**  
Lyndhurst 5, New Jersey

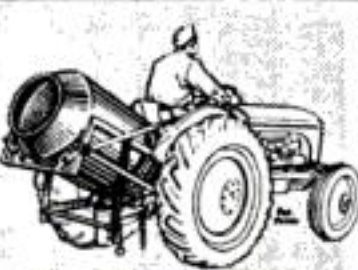
**FREE!**



## EISENHOWER, ROOSEVELT, LINCOLN or WASHINGTON

Your choice of one of these lovely unused postage stamps from Grace Kelly's Monaco PLUS a Grace Kelly Wedding stamp FREE with your order for a PRINCETON UNIVERSITY First Day Cover to be issued Sept. 22. For first time in U.S. Postal History this stamp will be printed on orange-color paper. Cover will have a beautiful engraved cachet and can be addressed to any name you wish. Price only 25c. Don't delay—order several for your friends.  
**K. M. WALSH Box 308 TUCKAHOE, N. Y.**

## ONE-BAG MIXER THAT TRANSPORTS



Universal Transmix® transports, mixes and dumps cement, silage, dirt, etc. P. T. O. driven—no gears or chains. Can be installed or removed in 15 minutes. Fits Ford, Ferguson, AC-WD, IHC Super C, H&M, Case VAC, J. D.-40, Oliver 55, and other 2- and 3-plow tractors. Unconditionally guaranteed. See your dealer or write, giving tractor model, to

**UNIVERSAL PULLEYS COMPANY**  
335 NORTH MOSLEY • WICHITA, KANSAS

**ONLY \$495**  
Freight included  
**FREE FOLDER**

18 FT CRUISER

**BOAT KITS**

12 Models as low as \$39.95 (freight included). Fiberglass boat covering kits, marine supplies, etc. Free folders.

**TAFT MARINE WOODCRAFT**  
Dept. P5-9, 636-39th Ave. N.E., Minneapolis 21, Minn.

**WHAM-O!** \$1.50 40-LB. PULL!

HITS LIKE A RIFLE—KILLS RABBITS, SQUIRRELS  
Powerful, silent, accurate  
For hunting, target, routing pests.  
Sportsman's choice  
sold world over!

**HUNTING SLINGSHOT**

Heavy duty 7" ash stock.  
40 heavy steel balls, extra rubber, target, adapter for shooting arrows.  
**GUARANTEED!** Professional model of Nat'l Slingshot Assn. At dealers, or write  
**WAMO MFG. CO., Box N-45, San Gabriel, Calif.**  
FREE catalog on crossbows, knives, games, pistols, etc.



**SPECIAL! DEDUCT 10% ON 4 OR MORE TIRES!**

**FULLY GUARANTEED TIRES COST LESS!**

Nationally famous **FIRESTONE, GOOD-RICH, U.S. ROYAL, GOODYEAR**, and other makes. Every tire selected and inspected for your safety.

**BUY WITH CONFIDENCE FROM PYRAMID TIRE**

**WHITE WALL TIRES \$1 EXTRA**

**HIGH GRADE TIRES GUARANTEED 12 MONTHS**

600x16 4.14	700x16 5.14	32x6(8) 8.84	825x20 14.24
650x16 4.54	670x15 4.74	32x6(10) 10.84	900x20 13.34
650x15 4.34	650x20 7.84	750x20(8) 8.54	1000x20 14.14
700x15 4.64	700x20(8) 8.94	750x20(10) 9.94	1100x20 16.14

**AAA PREMIUM GRADE GUARANTEED 12 MONTHS**

590x15 5.48	700x15 5.98	760x15 5.58	750x20(10) 14.98
600x16 5.28	700x16 6.78	550x17 5.48	825x20 18.68
600x16(6) 6.58	700x16(6) 7.98	600x20 9.78	900x20 18.98
640x15 5.68	750x16(6) 8.98	650x20 10.88	1000x20 19.98
650x16 5.78	800x15 6.88	700x20 12.88	1000x22 21.98
650x16(6) 6.98	820x15 7.48	700x17 8.96	1100x20 20.98
650x15 5.98	710x15 6.09	32x6(10) 12.48	700x18 10.98
	550x18 5.98	750x20(8) 12.98	750x17 11.98

**MILITARY SPECIAL**

**AA Guaranteed 12 Months—**

900x16 10.69	1000x20 19.98
750x20 10.99	1100x20 21.98

**AA GUARANTEED 12 MONTHS**

900x16 14.98	750x20 16.48
--------------	--------------

**New Tread Guar. 12 Mos.**

600x16 8.98
600x16 (6) 9.98
700x15 (6) 15.95
750x20 (8) 24.98

**PYRAMID TIRE CO.**

1333-35 North 5th St.  
Dept. S, Phila. 22, Pa.

Largest stock of used tires in the East. Thousands of satisfied customers. Write for Free Catalogue.  
MONEY ORDER OR CHECK WITH ORDER. NO C.O.D.'s

**MASTER MIND!**

**Learn Short-Cut Mathematics**

Juggle figures, do baffling number tricks. Make people gasp at your marvelous lightning-quick mind. Multiply 4 figures by 4 figures without using old-fashioned multiplication! Big cloth-bound volume! Fully illustrated course for self-instruction.

**Sharpen up Your Brain Power**

Includes worked-out problems, answers, etc. Sensational bargain, only \$3.95, postpaid or C.O.D. plus postage. Satisfaction guaranteed or refund. Order this amazing "Short-Cut Mathematics" today!

**NELSON-HALL CO., 210 S. Clinton St.**  
Dept. 4JU-1 Chicago 6, Ill.

**\$3.95 Complete**

**\$7.95**

**DRAINS** cellars, cisterns, wash tubs;  
**IRRIGATES - CIRCULATES - SPRAYS**

**1,001 USES—HOUSE, GARDEN, FARM**

Original All-Purpose Pump has 3,000 GPH capacity, 450 GPH 80' high; or 1800 GPH from 25' well. Use any 1/8 to 3/4 HP motor. Stainless steel shaft. Oil-less bearing. 1" inlet; 3/4" outlet. Motor coupling included.

**DOES NOT CLOG OR RUST**

Postpaid if cash with order. Send for yours today! **MONEY BACK GUARANTEE.** Larger Centrifugal Pumps and Gear Pumps in all sizes.

**LABAWCO PUMPS, Belle Mead 3, N. J.**

**NEW! Giant AUTOMOTIVE CATALOG**

1956 Edition! Everything for car, truck, custom-styled car, hot rod... at **LOWEST PRICES!**

**SAVE UP TO 50% on all parts, accessories!** Only complete automotive buying guide... 75,000 items... 196 pages! Thousands of **hard-to-find parts**; equipment, parts for 1920 to 1956 models; **Hollywood accessories** never before offered; **hi-speed parts.** Send your name and address and 25c (refundable with first \$5.00 order) to:

**J. C. Whitney & Co. 1917 Archer, Dept. T-9 Chicago 16, Ill.**

**SELL TO UNCLE SAM!**

**That's how I made \$20,000 a year—selling junk jewelry to the U. S. Government. Send me your name and I'll show you how I did it.**

**LEARN AT HOME IN ONE EVENING**

This is the most fantastic way of making money you ever heard of. That's because you do all your "selling" BY MAIL to one customer—the U. S. Government! Uncle Sam will buy all the old junk jewelry you send in at \$35.00 AN OUNCE for the gold it contains. Just follow my Plan and you can pick up gold on any street in your town. I show you where to find it, what to pay, how to test and how to mail to Uncle Sam for cash. I'll teach you the secrets by which I made \$20,000 a year. No charge for facts. No salesman will call. Send no money—just your name, address on postcard. **Leslie Patton, 335 W. Madison St., Dept. 129, Chicago 6, Ill.**

*For Maximum Warm Air Circulation and Smokeless Operation, Build Masonry Walls Around*

**HEATFORM**



Model "A" HEATFORM fireplace has side cool air inlets and front panel warm air outlet.

HEATFORM\* retains the beauty and glow of the open fire. Heating chambers surround the firebox and upper throat. Air drawn from the floor into these chambers is heated by contact with the hot metal and returned and circulated uniformly to all parts of the room and adjoining rooms. This substantially increases the heat delivery with less fuel consumed.

HEATFORM is a perfect guide for the masonry (hearth to flue) preventing construction mistakes.

HEATFORM adds but little to the fireplace cost. It consists of firebox, throat, smoke dome, and properly operated damper, replacing some materials and labor necessary with the ordinary fireplace. Fuel savings will more than offset the small extra cost.



Model "S" HEATFORM affords view of fire from front and either side.



*Write for free illustrated brochure*  
(\* Registered Trademark of)

**SUPERIOR FIREPLACE COMPANY**

Dept. PS 561  
1708 E. 15th St.  
Los Angeles 21, Calif.

Dept. PS 561  
601 North Point Road  
Baltimore 6, Maryland



# READY CUT HOMES DO-IT-YOURSELF \$AVE! \$\$\$

## BUY DIRECT FROM MILL & SAVE ON LABOR COSTS

You can assemble any of the 57 designs from easy-to-follow plans. Every piece marked, easily identified, ready to erect. You don't have to measure, or cut. It's all done economically by precision production machinery (not prefabricated). Save high skilled labor costs and material wastes. Save contractor's profits and overhead. Complete with all hardware, paint, nails, roofing, glass, etc. Sterling Homes are mod-

**ORDER TODAY - SAVE UP TO 40%**

PRICED FROM  
**\$2150.00 AND UP**

Send 25c

Color Catalog including Floor Plans



INTERNATIONAL MILL & TIMBER CO., BAY CITY, MICH. DEPT. PS96

**Overwhelming choice  
of winning NASCAR  
drivers for every  
make of car**

5-RIB

**CHAMPION**

SPARK PLUGS

WITH NEW POWERFIRE ELECTRODE

# ENGINEERING



Photo of Heald Electrical Laboratory  
Enroll Now for New Term

Heald College Ranks **FIRST**  
West of the Mississippi  
in "Who's Who" in America

Send for **FREE** Information

**Heald Engineering College**

Van Ness at Post, Dept. PS-8  
San Francisco, California

*Thousands of  
Engineers Needed  
for Hard Pressed  
Industry*  
**BACHELOR OF  
SCIENCE DEGREE,  
27 MONTHS**

### Degree Courses:

- ☐ Electronic Engineering
- ☐ Electrical Engineering
- ☐ Highway Engineering
- ☐ Mechanical Engineering
- ☐ Structural Engineering
- ☐ Civil Engineering
- ☐ Architecture

### Diploma Courses:

- ☐ **TELEVISION**
- ☐ Tool & Die Design
- ☐ Architectural Drafting
- ☐ Mechanical Drafting
- ☐ Structural Drafting
- ☐ Surveying
- ☐ Estimating
- ☐ Master Electrician

Approved for Veterans

NAME \_\_\_\_\_  
STREET \_\_\_\_\_  
CITY \_\_\_\_\_  
STATE \_\_\_\_\_

**For Glass-Like Finishes...**

## DON'T WAX IT-MAC'S-IT!

**1/2" GAUGE**



ACCURATE TO 25 MILLIONTHS OF INCH FOR  
CHECKING YOUR PRECISION INSTRUMENTS.

Each gauge box marked with individual variation  
from nominal dimension — not greater than  
1 ten thousandth inch. Only \$1.00 post paid.

Sorry no C.O.D. Money Order only.

THE PACKAGED BALL CO.  
LANGHORNE, PA.

**BRAND NEW BLUE-STEEL**

.22 cal. Blank Cartridge German  
AUTOMATIC, Clipload, 6 shot Repeater.

**NO PERMIT REQUIRED**

Latest model, not a clearance item. Gun  
is fully automatic, has positive safety  
catch, self ejecting clip. Adjustable firing  
spring. Machined with all the care and precision of  
West Germany's finest gunsmiths. Ideal for sporting  
events, theatrical performances, etc., 4" long, perfectly  
balanced. Satisfaction guaranteed. Send check or money  
order and save C.O.D. charges.

BIG THREE Inc., Dept. PS-9, 1109 Sixth Ave., New York 36, N. Y.



**\$7.95**

postpaid



**24" ATTIC FAN KIT**



Easy to assemble. Belt-driven.  
Blade, shaft, 2 self-aligning bear-  
ings, 2 pulleys, 2 collars, and V-  
belt. Everything you need, except  
frame and 1/4-hp. motor, to make  
your own house cooler.

ONLY

**\$9.95**

SAVE \$46.00

**MEDFORD MFG. CO.**  
MEDFORD, N. J.



**DRAWERS STICKING?** **Roll-eez**  
Trade Mark  
SET "A"

**INSTALL**

**ROLLER BEARINGS FOR WOODEN DRAWERS**  
— the Sensational **NYLON** ROLLER BEARINGS that **ELIMINATE** the CAUSE of STUCK DRAWER TROUBLES!

**Do-It-Yourself** Works Wonders on Furniture, Built-ins

Quick, easy to install. Roll-eez produce smooth drawer action because they eliminate friction of wood-against-wood and keep drawers in alignment—prevent sticking and binding even in hot, humid weather! Used in cabinet-shops. Noiseless NYLON rollers give lasting service. Each drawer set includes simple instructions and nails. Anyone can attach.

**At Hardware, Building Supply Dealers. If Not Available, Remit Direct to Factory.**

**Performance Compares with High Priced Slides.**

**Rear View**

**Center guide, nail third Roll-eez "N" on top of back in the middle, and Roll-eez "M" on bottom of back, straddling the guide.**

**Nail 2 Roll-eez "N" on rail at drawer opening. If drawer has center guide, nail third Roll-eez "N" on top of back in the middle, and Roll-eez "M" on bottom of back, straddling the guide.**

**49¢ Set for 1 drawer**

**JOBBERS DEALERS WRITE**

**Junior-Pro Prod. Co., Dept. S9 118 E. Marceau, St. Louis 11, Mo.**

**MAGNETS**

**5 Assorted Size Magnets \$1.00. Powerful Pocket Magnet W/case \$1.00. Hot Pad Magnets—large size 8/\$1.00. Bulletin Board Magnets 8/\$1.00. Slender Magnets—pencil type 2/\$1.00. Retrieving Magnets—extra power, heavy duty—30 lb. pull \$4.00, also 50-75-100 lb. pull.**

**Explore, learn Electricity, Magnetism, Electromagnets, complete kit and instructions with 22 experiments and models...\$3.98**

**TRANSISTOR RADIO KIT—all parts & instructions—powerful...\$7.95**

**Also—Rods, discs, bars, horseshoes**

**Send stamp for catalog—specify your requirements—100% Satisfaction Guaranteed.**

**PARK MAGNETS, 669, 1557 Green Bay Road, Highland Park, Ill.**

**WHOLESALE!**

**NATIONALLY FAMOUS** Power tools, appliances, typewriters, watches, diamond rings, jewelry, tape recorders, musical instruments, phonographs, guns, cameras, shavers, sewing machines, etc. Big illustrated color catalog! Earn big profits! Details about unique self-operating sales plan included.

**30 to 80% DISCOUNTS!**

**CONSOLIDATED DISTRIBUTORS**

**1300-06 MAIN, CLIFTON, NEW JERSEY**

**PRINTS POSTAL CARDS**

**Amazing New Advertising Machine!**

Learn how businesses are now boosting sales in spite of conditions—with ad messages—printed on government postals with amazing new patented **CARDMASTER**. Guaranteed five years. Low price—sold direct. **SEND NAME** for **FREE** illustrated book of money-making ideas and complete unique advertising plans. Send your name today to **CARDMASTER CO., 1920 Sunnyside Avenue, Dept. 139, Chicago 40, Ill.**

**Super Powerful All Channel TV RECEPTION IN ALL DIRECTIONS**

**Rocket DIRECTRONIC MOTORLESS TV ANTENNA**  
360° Electronically Switched Beam

- No Motors
- No Roof Orientation
- No Electric Power
- No Ghosts
- Flick of Switch Clears Picture Instantly

In the city or in an ultra-fringe area, the Directronic will out-perform ordinary antennas. Only the Motorless 360° Directronic TV Antenna offers "around the compass" reception WITHOUT Rotors. Clarity of picture will amaze, it's so bright, so sharply defined. AX-599 "Serviceman's Array" contains Hi-Pac molded insulator of extremely high tensile strength, 18 hi-tensile aluminum alloy elements, 1 set connecting stubs (3), Universal U-Clamps for masts to 1½". Directronic Beam Selector, 75' Tri-X Cable, 25¢ deposit on C.O.D. orders, please. Money Back Guarantee.

**AX-599 Directronic \$16.95**  
You pay postage

**NATIONAL ELECTRONICS OF CLEVELAND**  
6608 EUCLID AVE., DEPT. S-9 CLEVELAND 3, OHIO

**SAVE**  
with  
**Bridgeport INNER-SEAL**  
**WEATHER STRIPPING**

**MONEY**

**Guaranteed by Good Housekeeping**  
REPLACEMENT OR REFUND OF MONEY IF NOT AS ADVERTISED THEREIN

*The only weather stripping with this seal*

**THIS**

Now is the time to plan ahead for cold weather. Make your home snug. Save up to 20% on fuel costs, by installing INNER-SEAL.

INNER-SEAL seals heat IN, seals cold OUT. Its patented construction—spring steel molded in neoprene-coated rubber—makes it easy to install. Neat-looking and durable.

Buy INNER-SEAL in 17-ft. Queen B and 10-ft. B Paks, or in bulk, at hardware and variety stores and at building supply dealers'.

**FREE**—Tips on weather-stripping in Bridgeport's handy booklet, "Why Shiver" Send for your copy today!—or get one at your favorite hardware department.

Protect your overhead garage doors from freezing, splintering, slamming—with **OVERHEAD GARAGE DOOR CUSHION**.

**WINTER**

**BRIDGEPORT FABRICS, INC.**  
**BRIDGEPORT 9, CONNECTICUT**



# I call this machine "My Little Money Maker"



It can be put anywhere in the house—in the kitchen, the basement, or the attic and it goes on making money for you whether you're there or not. Three times a day—while you're at work, while you're asleep, or at the movies—it turns out a product that sells for \$6 and the cost of raw materials is only 54c. It will make 6 a day, and the profit on each is more than \$5.00. I'll be glad to tell you how to get one of these little money makers working for you.

What a fellow makes in his regular job today is hardly enough to make ends meet. Higher taxes, higher costs of food and rent and almost everything else raise hob with the savings account. And I say that what a fellow puts away is even more important than what he makes. It would worry me sick if I couldn't save a little against a rainy day.



And that makes it almost necessary to make some extra money. There are lots of ways to do it, too. The magazines and newspapers are full of ads for agents to sell things. But if I had to make a living by selling, from house-to-house, I'm afraid I'd starve to death. I like to make something with my hands and

either sell it by mail or let the stores sell it for me. There are lots of people like me. Another thing: Lots of men—and women, too—don't want to get mixed up with something that might hurt them on their jobs. They want a plan they can operate at home—in spare time—one that they can work at any time they please and one that doesn't need any rented store or hired help. And that's where my little money maker rings the bell.



Let's say you're like me. You want to make some extra money but you don't want to do any selling. All right—take a look at what you can do with this machine. I'll give you some facts that I discovered and your own common sense will tell you they're true.

If you're going to make something, it ought to be something that lots of people want—something that lots of people buy. It shouldn't be something that sells at just certain seasons—but all year round. And, it shouldn't be any flash in the pan. It's got to be steady—year after year—something that's not here today and gone tomorrow.

Well, give a thought to this: What's more permanent than babies? Ever since I can remember there's been more and more babies born every year. Last year three and a half million. This year more. Next year, more yet. Then answer this question and tie it in with your thinking: What's stronger than mother's love for her baby? And what is more powerful than love or sentiment in making people buy things. Now you've got the idea.

Every year millions of mothers want their babies' first shoes preserved as mementos. These mothers have the shoes "bronzed" as they call it—by electroplating. Electroplating coats the shoes with copper and preserves them forever. And there's no big company that has a corner on the business of metalizing baby shoes. Almost all of this work is done by little fellows in their kitchens



or basements. Lots of orders come to you by mail when you send out circulars letting mothers know you can do the work. Lots of stores take orders, but they have to turn the work over to you. There are six or seven ways to get orders without making any house-to-house calls. The big job is keeping up with them. You see, you can clean up six pair shoes in a few minutes. In a few minutes more you can dip them in the hardening solution like you see in the picture. Then you spray them with a conductive coating and hang two pair in the tank on copper wires. Just turn the switch and walk away. The machine does the rest. Eight hours later those shoes are ready to take out of the tank, burnish and mount and ship or deliver. Two pair every eight hours, whether you are asleep, awake or at the movies. The materials cost 54c a pair.



The retail price you get for electroplating is \$6.00—so the profit is more than \$5.00 a pair. Since you can do six pair a day you can see what the profit is, and the beauty of it is that the machine doesn't cost much. Almost anyone can afford the equipment. The book tells how to run the machine and how to get orders without house-to-house selling.

If you'll just put your name and address on the coupon and mail it to me, I'll send you all the information right away by mail. After you have read all this you will know what you want to do. It will be easy to decide whether you would like to have a "Little Money Maker" of your own. Everything I send you now is free. There is no catch to it and nobody will call to try to sell you anything. I'll send everything free and postage paid. All you have to do is mail the coupon, get the facts and then decide. Mail the coupon right away so I can help you get started making money.

**WILL A. MASON, 1512 Jarvis Ave., Chicago 12, Ill.**

## WILL A. MASON

1512 Jarvis Ave., Chicago 26, Ill.

Please tell me about the seven different ways to make money at home in spare time with your "Little Money Maker." It is understood that no salesman will call and it is up to me to decide what I want to do. Everything you send me now is free and will not cost me a penny now or ever.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



**WORLD'S GREATEST**

**CLASSIFIED**

# OPPORTUNITIES

Here are hundreds of opportunities offered especially to the readers of Popular Science Monthly.

Read them. Answer them! You can make and save money.

**POPULAR SCIENCE MONTHLY — 353 FOURTH AVE. — NEW YORK CITY 10**



MAKE MONEY

SAVE MONEY



Classified Ads only \$1.00 per word insertion, payable in advance. Minimum ad 10 words. To be included in November issue, copy should be in our office by September 24. No cancellations accepted after September 15. Address orders to O. K. Kelly, Classified Adv. Mgr.

## 1 AUTOMOBILES & MIDGET CARS

**MICRO** Midget auto. 5 to 30 M.P.H. Runs on walk, lawn, street. Used in concessions. Ideal for boys 9 to 16. \$99.50. Details free. Micro Midget, 940 North 23rd St., Omaha, Nebraska.

**CROSLEY** Owners. Join Organization. Parts Discount. CCOC, Box 7, Elmont, New York.

**FOR** Sale. 1-1914 Big Six Packard. 1-1914, Big Four Cadillac. 1-1917 Frankland. 1-1912 12x25 O.H.C. Tractor. Parts for Apperson, Jack Rabbot, Haynes six hupp four. 10 & F. Buick, 2 cyl. & others. Ben Meggers, Rhame, North Dakota.

**MAGAZINE** about antique automobiles. Send for free sample copy. Franson's Motor News, Box 254, Eugene, Oregon.

**HUNDREDS** of automobile catalogs—American, Antique Foreign; Dealer Books. Glossy Photographs, Shop Manuals; Free motor magazines—offered by Non-profit club. Write immediately get on free mailing list. Auto Maniacs, Inc., Stockbridge, Michigan.

**ANTIQUE** Automobile color slides, 2x2. Illustrated catalog Free. Universal, Box 779P, Beverly Hills, Calif.

## 2 AUTO SUPPLIES & EQUIPMENT

**FREE** Discount catalog—Speed, power, custom equipment. Almquist Engineering, Milford 3, Pennsylvania.

**BUY** Wholesale nationally advertised auto supplies, thousands other products at big discount. Free "Wholesale Plan." American Buyers', Hertel Station, Buffalo 16-S, N. Y.

**LATEST** Custom accessories . . . Items not in stores. New low prices. Continental tire kits, push-button doors, trunks, etc. New illustrated catalog . . . biggest ever. 25c. Eastern Auto, 3319-D South Grand, Los Angeles 7, California.

**AUTO** Accessory & Parts Catalog. 1956 edition—All New! 180 pages. Save up to 50%—over 75,000 items, including Hollywood Accessories, Hi-speed Equipment, Rebuilt Engines, all parts and accessories for all cars and trucks! Hard-To-Get parts! Send 25c (refundable). J. C. Whitney, 1919-PS Archer, Chicago 16, Illinois.

**CARPORTS**, Patio roofs, Partitions. Build them yourself with beautiful Fiberglass "planks." Details free. Concourse, 4004 Dyre, New York 66, N. Y.

**RADIOS** Custom for 1952-3-4-5-6 Fords \$38.90. Free literature. Nordic Radio, Box 582, Evanston, Illinois.

**LOVERS**, Investigators. Control your car's interior lights to not light when a door opens. Control for late hour arrivals, night investigation and daytime loading. Control instantly activated or deactivated for normal operation. Complete, postpaid, \$1.00 for 2 doors or for all 4, \$1.75. Beautiful aluminum, wireless, 2 minute installation. Give year, make, model, please. No stamps or C.O.D.'s. Control, Box 111, Providence 1, Rhode Island.

**DISCARDED** GM71-110 Injector Parts Wanted. Bonus on HV. Mayer, 7120 Carnegie, Cleveland 3, Ohio.

## USE THIS HANDY INDEX TO FIND WHAT YOU WANT

Advertising, Agencies for Advertisers . . .	53
Agents Wanted . . .	43
Antiques, Relics & Indian Goods . . .	29
Artists Supplies . . .	76
Authors Service . . .	52
Auto Supplies & Equipment . . .	2
Auto Trailers . . .	3
Automobiles & Midget Cars . . .	1
Aviation . . .	5
Batteries, Generators, Etc. . .	6
Boats, Outboard Motors . . .	11
Body-Building Courses, Jiu Jitsu, Etc. . .	12
Books & Magazines . . .	23
Build It Yourself . . .	66
Business Opportunities . . .	37
Business Service, Information, Name Lists . . .	50
Buy It Wholesale . . .	38A
Cameras, Photo Supplies . . .	34
Camping Equipment & Tents . . .	16
Cartooning, Sign Painting, Chalk Talks . .	54
Chemistry & Physics . . .	41
Coins & Currency . . .	26
Color Photo Finishing . . .	32A
Contests . . .	46
Detectives . . .	47
Dogs, Birds, Hamsters & Pets . . .	17
Educational & Instruction . . .	45
Electrical Supplies & Equipment . . .	7
Engines, Motors, Etc. . .	10
Farms, Other Real Estate . . .	19
Field Glasses, Telescopes . . .	14
For Inventors . . .	60
For Sale Miscellaneous . . .	71
For the Home . . .	69
Formulas, Plans, Etc. . .	39
Frogs & Earthworms . . .	18
Games & Entertainment . . .	24A
Geiger Counters, Treasure Finders . . .	77
Help Wanted . . .	42
High-grade Salesmen . . .	44
Hobbies, Collections . . .	31
Home Craftsman . . .	65
Hypnotism . . .	24
Inventions Wanted . . .	61
Language Outfits . . .	48
Machinery, Tool Supplies, Etc. . .	9
Magic Tricks, Puzzles, Etc. . .	25
Manufacturing . . .	63
Minerals & Precious Stones . . .	30
Miscellaneous . . .	79
Models, Model Supplies . . .	64
Moneymaking Opportunities . . .	38
Motion Pictures, Slides, Sound Equip. .	33
Motorcycles, Bicycles & Supplies . . .	4
Music, Song Writers & Records . . .	35
Of Interest To Women . . .	70
Old Gold, Jewelry, Watches . . .	67
Old Stamps Wanted . . .	27
Patent Attorneys . . .	59
Patents For Sale . . .	62
Personal . . .	80
Photo Finishing, Photocopies, Etc. . .	32
Plastics . . .	40
Plays, Stories, Etc. . .	49
Poultry & Supplies . . .	21
Printing, Multigraphing, Etc. . .	57
Printing Outfits, Supplies . . .	58
Profitable Occupations . . .	22
Radio, TV, Supplies & Equipment . . .	36
Razor Blades, Shavers . . .	74
Rubber Stamps & Office Supplies . . .	56
Special Services . . .	51
Sporting Goods, Guns, Fishing Tackle, Etc. . .	15
Stamp Collecting . . .	28
Tattooing Supplies . . .	75
Tobacco & Pipes . . .	68
Trees, Shrubs, Roots & Herbs . . .	20
Typewriters & Office Machines . . .	55
Wanted to Buy . . .	72
Watch Repairing . . .	78
Wearing Apparel . . .	73
Welding, Soldering . . .	8

**SAVE** Money on Jeep and Army Truck parts. Large inventory. Catalogs for Jeep or GMC. American Auto Parts Co., 1830-PS Locust, Kansas City, Missouri.

**PERMANENT** Bronze Filter Elements Standard. Full-Flow. \$2.95 Guaranteed. Zenick Products, Box 2461, Los Angeles 54, California.

**JEOP** Owners—V-8 Power. Read Jeep Owners ad. Page 90.

**IF** you have a product or service that can be operated on a mail order basis, write me today. I will send you a Free Kit on "How To Make Money Out Of Classified Advertising." Next issue will be November. Closing date September 25. Hurry—Do it Today! O. K. Kelly, Classified Adv., Mgr., Dept. A9, 353 Fourth Avenue, New York 10, N. Y.

## 3 AUTO TRAILERS

**EXCEPTIONAL** Expanding eight foot trailer. Accommodates family of five. Build Yourself—literature. 10c. Framar Company, Wilmington, Mass.

## 4 MOTORCYCLES, BICYCLES AND SUPPLIES

**RECONDITIONED** Motorcycles and motors. Chromium accessories. Complete stock Indian parts. Expert rebuilding. Fast service. Indian Motorcycle Sales, Kansas City 27, Missouri.

**DIESEL** Bicycle Motor, up to 300 miles per gallon Kerosene. Small in size—speeds up to 20 miles per hour. 3 1/2 H.P. Write Newage, 222 York Road, Jenkintown, Pa.

**SERVICYCLE** \$8. Midget motorcycle \$10. Cushman motorscooter \$10. Midget car \$25 less engines; Briggs engine \$4; Four airplane tires \$3. (Mailorder only). Send 25c (35c for first class mailing) for Directory-Catalogue Number 73, just out, listing these and hundreds of other bargains, homebuilders parts, plans, etc. Midget Motors Directory, Athens, Ohio.

**WHIZZER** motors \$20.00; Midget Race Car reasonable; Motorscooter \$6.00; Cushman two-speed \$20.00. Send 25c (35c first class mail) for catalog = 30 jammed with sensational bargains in wheels, motors, motorscooters, midget cars, motorbikes, construction plans, etc. Gall, 1313 Jefferson, Toledo, Ohio.

**CUSHMAN**—small engine speed cams \$8.50 exchange. High compression heads—Cushman \$8.59. 25c Motorcycle Catalog. Weber Tool, 6441-43 N. Figueroa St., Los Angeles 42, California.

## 5 AVIATION

**AIRCOOLED** Engine, Franklin 0-425-9. 245 HP, six cylinders (three each side); 440#, standard aircraft, with dual magnetos, ignition harness, carburetor. Low time! F.O.B., cwo, 98% off AAF cost, now only \$99.50. O. K. Williams, Box 6067, San Antonio, Texas.

**AVIATION** Surplus Materials; new, huge bargain catalog, listing over 1000 items; hydraulics, electrical, electronics, air, engines, airboat parts, etc. Send 25c. Aero Parts Supply, 8102 Lockheed, Houston, Texas



# POPULAR SCIENCE OPPORTUNITIES

**FLYING** Can be inexpensive! Form Flying Club. Successful Charter. Bylaws. Only \$2. Box 126, Opa Locka, Florida.

**PROPELLERS**, plans, supplies by World's oldest and largest manufacturer of special design airboat and snowplane propellers. Latest designs. Prompt delivery. Satisfaction guaranteed. 48 page catalog 25c. Banks-Maxwell, Box 3301G, Ft. Worth 5, Texas.

**HOMEBUILT Helicopter Handbook**. \$1.00. Urshan, Box 4332 N.P. Station, San Diego 4, California.

**AVIATION Surplus Bargain Catalogue**. One Dime. Box 22PS, Thomasville, Pennsylvania.

**AVIATION Books**. World's largest selection! Free Catalog. Aero Publishers, 2162-PS9 Sunset, Los Angeles 26, California.

## 7 ELECTRICAL SUPPLIES & EQUIPMENT

**ELECTROPLATING** equipment, anodes and solutions for all types of plating. Instructions. Assemble your own plater and save. Free Catalog. Ramyr, Dept. E-2, 1524 East First Street, Los Angeles 33, California.

**LAMPS**—Parts Catalog containing wiring instructions. 25c. Gyro Lamps, 5402B Clark, Chicago 40.

**ELECTRIC Pencil**: Engraves all Metals. \$2.00. Beyer Mfg., 10511-C Springfield, Chicago 43.

## 8 WELDING, SOLDERING

**NEW "all-in-one"** oxy-acetylene outfit welds sheet, plate; cuts heavy steel; heats; brazes. Uses interchangeable tips. Portable, easy to operate. Complete with instructions, \$76.50. Gas cylinders on special money-saving plan. Write for free information: Dept. S, Linde Air Products Company, 30 East 42nd Street, New York 17, N. Y.

**WELDERS**, 110/220. Welds 1/2". \$39.50. Morris, 1070 Inner Drive, Schenectady, New York.

**ACETYLENE** Welding outfits new \$49.00; used \$29.00; Arcwelders \$56.50. Eagle Welding, Dept. 42, 5085 Broadway, Chicago 40, Ill.

**"BUILD-UR-OWN"** a.c. welder and a.c. power plant with a good used engine and low cost Hobart generator. Welds anywhere and supplies 5KW stand-by power for any emergency. Write Hobartweld, Box P-963, Troy, Ohio.

**WHOLESALE** Welding Supply Catalog. Popular Brands, 25c. Janco, Box 1031, San Jose, California.

**A. C. Welders**, four sizes, lowest prices. Free literature. Holgeron Co., Canton, Kansas.

**BUY** welding supplies direct from manufacturer. Cable, welding rods, helmets, etc. Portable arc-welders and kits at tremendous savings. Free factory catalog! LeJay 23, Minneapolis, Minnesota.

## 9 MACHINERY, TOOL SUPPLIES, ETC.

**NEW** Invention! Automatic electric power hammer. Make-It-Yourself plan with photos, four dimes. Catalog of tools and parts for hammer included. Rush order. Maupin, Tipp City 6, Ohio.

**TRIANGLE** problems? Solve with a "Trigsie" Trigonometer—work 2 slides, read answer direct—in seconds. No formulas, no calculations. Write for free literature. Vanora Products, Dept. S-9, P.O. Box 8485, Kansas City, Missouri.

**SAVE**. Buy direct from Government. Surplus power tools, machinery, truck, jeep, boat, motor, sporting camping fishing hunting equipment, radio photo printing equipment, cameras, hundreds others listed in our bulletin and may be bought direct from Government thru same. Price \$1.00 "Surplus Sales," Box 169ARA, East Htd. 8, Conn.

**LAWNMOWER** Sharpeners: All New. \$59.75 to \$259.50 until January 1st. Both light and heavy production. Fast. Turner-Cline, 430 Yellowstone, Pocatello, Idaho.

**YOU** can have your Taps and Drills sharpened. Blake Chamfer, Black Diamond 1/32"—3/4": A-Z: #70—#1: Oliver 2-3-4-Lip 3". Parcels Post Box 43. Myers, Northfield, Ohio.

**JEOP Owners**—V-8 Power. Read Jeep Owners ad. Page 90.

## 10 ENGINES, MOTORS, ETC.

**REWIND** Motors yourself. Complete instructions \$1.00. Lewis Mfg., Howell 11, Michigan.

**GAS** Engines: 1 H.P. "Briggs Stratton." Kick Starters. Were Priced \$57.00. Special Price \$29.95; "Continental" 1 1/2 H.P. Were Priced \$65.00. Special Price \$29.95. All P.O.B. Boston. Horizontal Shafts. New. Factory Sealed Cartons; Details (Other Engine Bargains) & Money-Back Guarantee. Free . . . Northern, 172-S Merrimac Street, Boston-14, Mass.

**REWINDERS** supplies, instructions, equipment plans. Modern, Box 8715, Kansas City 14, Missouri.

**ELECTRIC** solenoid Motors for hobby and display work. \$2.00. Write for literature. Gregory Motors, Paramus, New Jersey.

**NEW** Gasoline Engines. 2 H.P. \$29.95. Clutches. Kits. Catalog 10c. Loren Products, Danville, Illinois.

## 11 BOATS, OUTBOARD MOTORS

**NEW**, used rebuilt marine motors. Marine conversions, fittings. Free Catalog. Stokes Marine Supply, Dept. 23, Coldwater, Mich.

**FREE** Catalog! Boat Kits, Trailers, Fiberglass, Marine Hardware. Luger Industries, Dept. K-9, 4452 Nicollet, Minneapolis, Minnesota.

**BUY** Wholesale nationally advertised outboards, thousands other products at big discount. Free "Wholesale Plan." American Buyers', Hertel Station, Buffalo 16-T, N. Y.

**FULL** size, cut-to-shape Boat Patterns. Blueprints. 7 1/2-38 feet. New 1956 illustrated 85 Page "Build A Boat" catalog of naval architect-designed Cruisers, Runabouts, Sloops, Skiffs, Outboard Boats, Sailing, Racing, Houseboats, 50c. 1956 "How to Build a Boat" booklet, \$2.50. Cleveland Boat Blueprint Co., Dept. A-77, Box 1651, Cleveland 4, Ohio.

**MARINE** conversions for Ford and Jeep engines. Catalog 25c. Lehman Manufacturing Co., 972A Broad St., Newark 2, N.J.

**FIBERGLASS**. For Boats and Autos. Free Catalog. Sealtite Fiberglass Process, 22259 Goddard, Dearborn, Michigan.

**BOAT** Plans—Full Size Patterns—Frame Kits. Modern Inboards and Outboards for amateur builders. Complete New Catalog 50c or specify requirements. Glen Marine, Box 568, Compton, California.

**BOAT** Coverings (Fiberglass) wholesale prices. Free literature, samples. Seifert's, Box 31X, DePere, Wisconsin.

**BOATS**—Big savings All types. Free information. Boating, Henrietta 9, N. Y.

**FIBERGLAS** boat coating. Plexiglas boat windshields—clear, blue, green tints. Wholesale-retail. Instructive information catalog—free! Gem-O'-Lite, 5529 Cahuenga, North Hollywood, California.

**PLANS** Catalogs: Sailboat 25c. Powerboat 50c. Kits. Marinecraft, Box 161-P, Brighton, Massachusetts.

**"GLASBOTE"** Plastic and glass cloth for boat covering. Complete information and material price list free. Buchanan Plastics, Dept. M, 1728 Hamilton Road, Okemos, Michigan.

## 12 BODY-BUILDING COURSES, JIU JITSU & ATHLETIC EQUIPMENT

**BUILD** powerful arms, chest, shoulders! 22 exercises. \$1. Fonsad, Box 601-C, 1100 Market, Wilmington 99, Delaware.

**4 MUSCLE** Courses 25c Fully Guaranteed. Sid's System, Southgate, California.

**OUTSTANDING** Physical Development! New guaranteed system uses only a rope! Strength—Health—Gain—Reduce. Valuable booklet free. Roperice, 4834 Art Street, Room 206, San Diego 15, California.

**PUSHED** around? Why take nonsense from Bullies. Give them the surprise of their lives. Easy when you know Police Jiu Jitsu. Complete fully illustrated course in one volume same as taught police and armed forces. Send \$1 now for Police Jiu Jitsu postpaid. Satisfaction guaranteed. Books Publishing Company, Amityville 2, New York.

**BARBELLS**, Dumbbells, Exercise equipment Courses. Free booklet. Good Barbell Co., Reading, Penna.

**BARBELLS**—Free booklet. Health, Strength, Physique. Reading Barbell Co., Box 455, Reading, Pa.

## 14 FIELD GLASSES, TELESCOPES

**FREE** Catalogue! Thousands war surplus optical bargains. Lenses, Prisms, Telescopes, Binoculars, etc. Send \$1.00 for 10 Lens Hobbyist Set and Project booklet. G. Jaegers, 691 West Merrick Road, Lynbrook, New York.

**WAR** Surplus bargains! Millions of lenses, instruments, telescopes, binoculars, components and complete line of astronomical telescope items. World's greatest optical market place! Send only \$1.00 for beginner's 10-lens kit and big instruction booklet Stock 2-CN. Write for catalog-CN Free. Edmund Scientific Corp., Barrington, New Jersey.

**AMAZING** prices binoculars, gunsopes. Free trial. Folder "Binocular Selecting," catalog free. Prentiss Importers, Mercury Bldg., West Los Angeles 25, California.

**DYNASCOPE**—Sensational New Reflector Telescope. Send for details. Criterion Company, Dept. DS-29, Hartford, Connecticut.

**MICROSCOPE** Catalog Free. Research Scientific Supplies, 60 Wall Street, New York 5.

**SAVE 35%!** \$150,000.00 Binocular Stock! Pocket sizes to 20X. \$3.95 to \$250.00. Also, Telescopes, Riflescopes. Free 56 page 3 color catalog. United, 9043 S. Western, A-3116, Chicago 20. Dealers Wanted.

**REFLECTOR** Telescope Kits \$6.25 (3") to \$175 (12"). Mirrors, Cells, Focusing Mounts, Tripods, Eye Systems. Anything, everything in telescopes. Free Catalog. Also Ready to use telescopes from \$25. Esco Products, Dept. PSM-9, Oakridge, New Jersey. Showroom, 166 Church Street, New York City.

**REFLECTING** Telescopes completely assembled. 60X. \$29.75. Guaranteed Observatory clearness. Free information. Skyscope, 475 Fifth Avenue, New York 17.

**BUILD** your own Reflector Telescope. Complete kit: Mirrors, Eyepieces, Tripod, all other accessories. Request free illustrated literature. Criterion Manufacturing, Dept. KP-23, Hartford, Connecticut.

**SIDEREAL** time easily determined, anytime, anywhere. Send \$1.00. Star Time Calculator, RR 2, Buchanan, Michigan.

**BINOCULARS**, telescopes, microscopes. Terrific values \$3.98 up. Request free money-saving catalog. Criterion, Dept. S46, Hartford, Connecticut.

**TELESCOPE** View Finder. New Type. 9 power. Price List Free. C. C. Young, 25 Richard Road, East Hartford 8, Connecticut.

**400X** Telescopes easily made. Kit includes focusing tube, erector, five finished lenses and building instructions—\$3.75. Free booklet on completed telescopes, tripods, mirrors, lens kits, etc. Suffolk Science, Mattituck 4, New York.

**ASTRONOMICAL** Books, Star-Atlases, free list. Herbert Luft, 42-10 82nd Street, Elmhurst 73, New York.



# POPULAR SCIENCE OPPORTUNITIES

REFLECTING Telescopes, Mirrors, Kits. Lowest Prices Anywhere. Free Catalogue. Aurora Telescope Company, 266 Avenue C, Bayonne, New Jersey.

## 15 SPORTING GOODS, GUNS, FISHING TACKLE, ARCHERY, TRAPPING

180 PROFUSELY illustrated pages, antique pistols, swords, daggers, armor, etc. 50c. Robert Abels, PS860 Lexington Ave., New York 21.

FREE Fishing Catalog—148 Pages. Over 3,500 Hard To Find Fishing Specialties. Netcraft Company, Dept. PS1, Toledo 13, Ohio.

BUY Wholesale nationally advertised sporting goods, thousands other products at big discount. Free "Wholesale Plan." American Buyers, Hertel Station, Buffalo 16-U, N. Y.

FREE giant handbook! "How to Bow-hunt and Bowfish" 100's Revealing Secrets! Also Tells "How to Improve Shooting Accuracy, Select best equipment, make your own tackle, etc." Illustrated! Yours Free with large Bargain Catalog (Save 50% on archery equipment). Send 25c to cover mailing expenses refunded on first purchase. Supply Limited! Hurry! Malibu Archery, 1036-NSR, South LaBrea, Los Angeles 19, California.

SKIN Divers—dive for profit! New underwater metal detector locates sunken outboard motors, cameras, etc. Waterproof, self-contained unit, illuminated meter. Free information. Goldak, 1540 W. Glenoaks, Glendale, California.

GUNS! We Buy, Sell, Trade! Free! Send for latest list of used and new Gun Bargains; plus Gun Trading Dope Sheet, describe your Gun Fully! Klein's, Dept. C-P-9, 227 W. Washington, Chicago 6, Illinois.

DISCOUNT to 50%. Guns, Scopes, Binoculars. Free List. Bensons, 117 W. Flagler, Miami, Florida.

5,000 BARGAINS, firearms, binoculars, war relics, catalog 50c. Smith Museum, Kunenmede, N. J.

JAP rifles altering American shells \$6.00. Jap shells \$3.65, catalog 5c. TP Shop, West Branch 10, Michigan.

MOLDS for Fisherman's Sinkers, Jigs, Squids, Casting and Spinning Lures. Free Catalogue. Sweet's Molds, Tonawanda 3, New York.

1,000,000 HUNTING—target—sporting guns from \$10.00!!! Colts, Lugers, Mausers, P38's, Winchester's, Swords, Armor, Super Bargain Catalog 50c. Agramonte's, Yonkers 2A, New York.

GUNS Bargains, Modern Antique Swords, Catalogue 25c. Firearms Unltd., P.S.-119 Shady Ave., Pittsburgh 6, Pennsylvania.

NYLON Rope, Lines, Cords. Every description for all household and sportsmen's uses. Finest made. Free catalog and samples. Beebe Cordage Co., Cranford 7, New Jersey.

SPINNER and Wobbler blades for fishing 10c a piece, minimum order \$1.00. Edward Glen, % Glenlure Mfg. Co., 140 Midland Ave., Saddle Brook, New Jersey.

FREE—Giant 1957 wholesale sporting goods catalog. Lowest wholesale prices. Complete line of cameras, sporting goods, appliances, outdoor items. Write today. Sante Fe Distributing Co., 1321 Main St., Dept. PS, Kansas City, Missouri.

OVER 500 Antique, Modern Guns, Powder Flasks, Swords, Edged Weapons. Large list 25c coin. Ed Howe, 26 Main, Coopers Mills, Maine.

JEEP Owners—V-8 Power, Read Jeep Owners ad. Page 90.

## 16 CAMPING EQUIPMENT & TENTS

CAMPING Equipment, Tents, (direct from manufacturer). World's largest selection. Send 15c for 120 page 1956 tent & camping equipment catalogue-handbook. Morsan Tents, 10-21G 50th Avenue, Long Island City 1, New York.

CAMPERS Scouts send \$5.95 new All In One camping knife kit, guaranteed, stainless steel, compact utensils. Camper, P.O. 53ps, Glendora, California.

## 17 DOGS, BIRDS, HAMSTERS, RABBITS & PETS

GROW Mushrooms. Cellar, shed. Spare, full time, year round. We pay \$3.50 lb. We Paid John Betts \$7,977.76, he started as amateur. Free Book. Mushrooms, Dept. 177, 2954 Admiral Way, Seattle, Washington.

NATURALISTS—Prospector's Catalog 25c. Chameleon 85c. Quivira Specialties, Topeka 10, Kansas.

MAKE Big Money Raising Nutria, Chinchillas, Cavies, Mink, Rabbits, or Pigeons for us. Free information. Keeney Brothers, New Freedom, Pennsylvania.

HAMSTERS—Pair \$2.95. Free Booklet. Jer-Fre's Hamstery, 2425 Hoyt, Muskegon Heights 14, Michigan.

HAMSTERS—Golden: young, \$3.00 pair. Fully developed \$4.00 Pair. Adirondack Hamstery, Prospect 163, New York.

RAISE Mink: Free booklet, pen plans, inside "secrets," feed, care. Mink are money makers. Investigate today. Lawrence Molgard, Brigham City 13, Utah.

SPECIALS: Turtles or chameleons 2 for \$1.00, postpaid. Descended pigmy skunks \$10.00. Raccoons \$5.00. New Zealand rabbits \$2.00. Opossums. Monkeys from \$19.50. Free price list. Thompson Wild Animal Farm, Clewiston, Florida.

IF you have a product or service that can be operated on a mail order basis, write me today. I will send you a Free Kit on "How To Make Money Out Of Classified Advertising." Next issue will be November. Closing date September 25. Hurry—Do it Today! O. K. Kelly, Classified Adv., Mgr., Dept. A9, 353 Fourth Avenue, New York 10, N. Y.

## 18 FROGS & EARTHWORMS

\$10,000 YEAR possible, earthworms. 32 Page booklet tells how 35c. Missouri Earthworm Research, Box C-6851, Kansas City, Missouri.

## 19 FARMS, OTHER REAL ESTATE

NEW Strout Fall Catalog. Just Out! Mailed Free! Over 3,000 bargains. 36 States, Coast-to-Coast. Farms, Homes, Businesses. World's Largest: 56 Years Service. Strout Realty, 251-ZB 4th Ave., New York 10, New York.

500,000 ACRES California State Government Land low as \$5. acre minimum offer. Send 10c (coin) for information on available lists and maps of 40 to 640 acre tracts. Pacific Lands, 7419-G Beverly Blvd., Los Angeles 36, California.

FLORIDA—Nice homesites, \$245 at \$10 monthly. Folder Free. Winfree Verner, DeLand, Florida.

DOWN town home. Near Gulf. \$21,000. Box 305, Venice, Florida.

10 ACRES Missouri land, \$90.00. Warranty Deed. Free List. John Calvert, Plant City, Florida.

HOMESITES \$15 Monthly—California's finest garden section—Morro Bay's scenic shores. Wonderful fishing, boating. Fertile soil, softest water, temperate climate, congenial community. Free literature. Richard Otto, Department P, San Luis Obispo, California.

## 20 TREES, SHRUBS, ROOTS, HERBS

TREES And Shrubs—Raise your own from seed for shade, windbreak, snow fence, ornament, erosion control, etc. For free planting guide—price list, write Woodlot Seed Company, Norway 46, Mich.

GINSENG, Goldenseal, Roots bring up to \$12.00 pound. Full information. F. G. Collins, Viola, Iowa.

## 21 POULTRY & SUPPLIES

RAISE pheasants on \$100 week plan. Little capital and space can make you independent. Free details. Great Central System, Columbus 6, Kansas.

## 22 PROFITABLE OCCUPATIONS

\$5000 FROM Half Acre growing Ginseng, crop bought. Particulars 10c. Associated Growers, Sperling, Manitoba.

BUY Wholesale thousands nationally advertised products at big discounts. Free. "Wholesale Plan." American Buyers, Hertel Station, Buffalo 16, New York.

JOBS—High Pay. South America, the Islands, USA, foreign countries. All trades. Clerical, labor, engineers, drivers, others. Women also. Fare paid. Application forms. For information, write Section 92C, National Employment Information, 1020 Broad, Newark, New Jersey.

LEARN Free how to become Glamour Photographer. Make big profits photographing beautiful models. Opportunities nation-wide. No previous experience or expensive equipment needed. Write for Free Illustrated Success Plan. Harrison's, 1031-C Magnolia Park Station, Burbank 9, California.

WHOLESALE Catalog!! 30-80% Discounts! Appliances, Musical Instruments, Typewriters, Tools, Watches, Jewelry, Cameras, Housewares, etc. Consolidated Distributors, 1300-19 Main, Clifton, N. J.

GROW Mushrooms. Cellar, shed. Spare, full time, year round. We pay \$3.50 lb. We Paid John Betts \$7,977.76, he started as amateur. Free Book. Mushrooms, Dept. 101, 2954 Admiral Way, Seattle, Washington.

FREE Booklet "How To Make Money In Your Own Business." Capital or experience unnecessary. No stock to carry. We ship orders under your name. Topval Corp., Lindenhurst 245, New York.

FORTUNE Possible raising fishworms and crickets. Free Information. Carter Farm-10, Plains, Georgia.

EARTHWORMS Urgently Needed! Raise on waste, sell 800% profit! Raising, marketing instructions, 10c—Oakhaven 7, Cedar Hill, Texas.

WELDING Pays \$\$\$! Learn easily at best equipped school in country. Non-profit school with low cost training. G.I. approved. Write Hobart Trade School, Box P-962, Troy, Ohio.

MAKE Money Writing Short Paragraphs! No tedious study. I tell you what to write, where and how to sell; and supply list of editors buying from beginners. Many small checks add up quickly. Write to sell, right away. Send for free facts. Benson Barrett, Dept. CP-86-W, 7464 Clark, Chicago 26.

WANT share in booming \$6 Billion business? 40,000,000 auto accidents; 365,000 home fires; \$100 million railroad losses need Claim Adjusting. Train home for terrific full or spare time opportunities. Free book. Universal Schools, 6801 Hillcrest, B9, Dallas 5, Texas.

OPERATE profitable mail order business. Beginners Instruction handbook 25c. Satisfaction Guaranteed. L. C. Sales, 17 South 9th St., Wilmington, North Carolina.

YOUR Own Wholesale Business Without Investment. Free Catalog. Norris, 487-H Broadway, New York.

FREE "\$5,000-\$45,000; Unlimited Vacations." Work home! No merchandise, equipment! Haylings-PS, Carlsbad, Calif.

MAKE new greaseless doughnuts in kitchen. Sell stores. Free recipes. Samuel Ray, 3605 South 15th, Minneapolis 7.

FASCINATING work. Adults all ages. Hoffmann, 880 Glen, San Leandro, California.

FREE Bulletin—\$6000-\$60,000; Unknown Self Working Family Security Plan. No equipment, Merchandise. Sound! No risk! Unlimited possibilities! Baugh-PS, 1514 "F" Street, Sacramento, California.

EARN \$40 weekly addressing envelopes, Instructions \$1. Berckun, 2763 Linden, Knoxville, Tennessee.



# POPULAR SCIENCE OPPORTUNITIES

**FREE Book "505 Odd, Successful Businesses."** Work home! Pacific—37C, Ocean-side, Calif.

**LIFETIME** income selling vitamins. Write: B. Booth, Box 733, Miami 5, Florida.

**MUSHROOMS** Now Bring Bigger, Quicker Cash. Spawn plus newest manure-less growing, marketing methods. \$1.00. Free Literature. Christenross, 641 South 19th, Newark 3, New Jersey.

**60% PROFIT** Cosmetics. \$25 Day Up. Hire others. Samples, details. Studio Girl Hollywood, Glendale, California. Dept. 1169H.

IF you have a product or service that can be operated on a mail order basis, write me today. I will send you a Free Kit on "How To Make Money Out Of Classified Advertising." Next issue will be November. Closing date September 25. Hurry—Do it Today! O. K. Kelly, Classified Adv., Mgr., Dept. A9, 353 Fourth Avenue, New York 10, N. Y.

## 23 BOOKS & MAGAZINES

**JOHN** Friend, Bookfinder, can get the book you want. Free Search Service. Box 197PS, Cardiff, California.

**HORSE** Books—Breaking, training, care. Bob R. Carson, 1304 W. Kiowa, Colorado Springs, Colorado.

**BOOKHUNTERS!** All Subjects. Send Wants! Jaher Book Service, 183 Hazelwood Drive, Westbury, New York.

**NATIONAL** Geographic Magazines 1888-1952. Any issue. Periodical Service, Box 465-PS, Wilmington, Delaware.

**ATHEIST** Books. Catalogue free. Truth Seeker Co., 38 Park Row, New York 8.

**WANTED:** Science and Invention Magazine 1931-32. Research, Box 46, Weatogue, Connecticut.

**FRIENDLY** Bookfinders, all subjects. Free catalog: books on costume, "Gay 90s" wasp-waists, high heels, etc. Naboma Company, Box 20725-P2, Heights Station, Los Angeles 6, California.

**BRITISH** Book Bargains—All Subjects. Stamp brings catalog. Transbooks, Box 22-PSI, Brooklyn 26, New York.

**DISPOSAL** Sale: New-Used Books 12—\$1. Bargain List Samples 10c. Persil, 436 N. Y. Ave., Brooklyn 25, New York.

**BOOK** Catalog, 1000 interesting titles, send 10c. Books Publishing Company, Amityville 2, New York.

**FLYING** Saucer Books, Rented, Sold. New Era, BS-18 Melrose Building, Houston 2, Texas.

**BOOKS** located Write Old South Book Service, 24 Ste. Botolph, Boston 16, Mass.

**SPARETIME** Repeat Profits. Taking Magazine Subscriptions. Good Commissions, Exceptional Special Offers. Cassell Agency, Boynton Beach 5, Florida.

**SUCCESS** books, for men who want to get ahead. List free. Helpful Book League, 221, New York 16, New York.

**NATURAL** conception control. Free pamphlet on Doctor Latz' Book Rhythm! Write Latz Foundation, Box 752, Chicago 90, Illinois.

## 24 HYPNOTISM

**FREE** Illustrated Hypnotism. Selfhypnosis. Catalogue. Write: Hypnotist, 8721 Sunset, Los Angeles 46P, California.

**HYPNOTISM!** Party Demonstrations. Neige Diehl, Post Office Box 2002, Seattle, Washington.

**EX-Ray** Mind! Hypnotize, one glance. Guaranteed \$3.00. Wamsteker, Box 10, Ottery, Cape, South Africa.

**SPEED** Hypnotism! Simple, Effective, complete, course!—\$2.00—Hypnotism, Coryton, Tennessee.

**REINCARNATION** impossible? Experiment hypnotically! 78rpm record, instructions. \$2.50. B. Grauer, 210 Fifth Avenue, New York 10-J.

**HYPNOTIZE** Successfully! Learn Easy, Fast, Modern Methods. Complete, Illustrated Course, including self-hypnosis and "Secret Nerve Pressure Technique" (Guaranteed Harmless)—\$1.00. H. Fowler, 5B4 Sheridan Village, Schenectady, New York.

**HYPNOTISM**—Learn to Hypnotize Almost Anyone in just one Hour. So Easy, So Fascinating. Become a Professional. Copyrighted course sent pre-paid for only \$1.00. Instructor Services, P.O. Box 109, Akron, Ohio.

**DIPLOMA**, Degree Correspondence courses, Hypnotherapy, Psychology, Science. Aurean, Central Valley, New York.

**MASTER** Hypnotism in 25 Lessons, complete easily learned fascinating course in one volume. \$1 postpaid in plain wrapper. Satisfaction or dollar refunded. Books Publishing Co., Amityville 2, New York.

**STUDY** Hypnotism! Amazing illustrated lessons. Big 280-page treatise jam-packed with fascinating information. Simple understandable language you'll enjoy. Full price only \$3.95 postpaid—or C. O. D. Plus Postage. Satisfaction or refund guaranteed. Order "Hypnotism" today. Nelson Company, 210 South Clinton, Dept. 2JU-1, Chicago 6.

**"SNAP-Hypnotism!"** One word! One finger-snap. \$2. Hypnomaster, 846 Sunnyside, Chicago 40.

**FREE**—Sample lesson in hypnosis. Write Baltimore School of Hypnotism, Dept. 409C, 1830 N. Broadway, Baltimore 13, Maryland.

**PROFESSIONAL** School (weekly programme T.V.) offers Complete Course. Failures sell gadgets and books—hypnotism our business. Hollywood School, 6252 Woodman, Van Nuys, California.

**HYPNOTIZE** yourself and others—with new 33 $\frac{1}{3}$  RPM Record. Develop latent talents, overcome weaknesses. \$5.95 postpaid or COD plus postage. Particulars on request. K&W Enterprises, Box 535-B, Miami 35, Florida.

**MIND** power suggestion records, auto-hypnosis, hypnotism, reincarnation, occult books. Free catalogs. Lloyd Collins, Appalachia, Virginia.

**FREE** Catalogue! Hypnotism! Selfhypnosis! Hypnotherapy! Reincarnation! Accessories! Drawer PS9-697. Ruidoso, New Mexico.

**"3-D Mechanical Hypnotist."** Hypnotize using this fascinating apparatus for 10 days—Money Back if not delighted. Plus Free 32 page Book, Secrets, Procedure. Both only \$1.98 ppd. Hypnotic-Aids, P9-S, 30 East 20th, New York City 3.

## 25 MAGIC TRICKS, PUZZLES, ETC.

**500 TRICKS**, Douglas famous 120-page Catalog, only 10c. Fastest service to magicians for 30 years. Send 10c today. Douglas Magieland, Dept. 2, Dallas, Texas.

**3100 NOVELTIES**, Jokes, Tricks, Gadgets, Funmakers, Hobbies. Big catalog 10c. Johnson-Smith, D-203, Detroit 7.

**MAGICIANS**, Gambling systems exposed, winnings revealed. Catalog 10c. Book, Box 671, St. Louis 1, Missouri.

**LEARN** Ventriloquism, easiest method, free particulars. Smith, 2125 Bigelow, Peoria, Illinois.

**BE** a magician! Large professional catalog of latest tricks, 35c. Ireland, F-109 North Dearborn, Chicago 2, Illinois.

**WORLD'S** finest professional magic. Joker novelties. Giant illustrated catalog 10c. Top Hat, Evanston 13, Illinois.

**PROFESSIONAL** Catalog, 175 pages, 25c. Williams, 900 Plymouth, Ellwood City, Pa.

**GO** Ventriloquist, all secrets told. Make money, surprise friends. Send 35c for information and receive Free \$1.00 catalogue of dummies, dialogues, etc. Limited supply. Gough, R3, Hartford City, Indiana.

**"VENTRILLO"** Professional Voice Thrower and Catalog 25c! Box 971-PS, Philadelphia 5.

**COMPLETELY** Illustrated 500 Trick Magic Catalog 25c. Stowell's, Woodstock, New York.

**SENSATIONAL** Magician's Wand (Vanishes Handkerchief!) 25c, catalog included. Box 1352-PS, Philadelphia 5.

**"SVENGALI** Deck" trick cards 50c with catalog. 1746-S Market, Philadelphia 3.

**DOLLAR** Magic Set Free with Catalog 25c. 4462-PS Germantown, Philadelphia.

**SMOKEBOMBS** 25c, 7 for \$1.00. (Ter-rific!) 4463-PS Greene, Philadelphia 44.

## 26 COINS & CURRENCY

**FREE!** Foreign coin banknote and Coin Collectors' Illustrated Catalog to approval service applicants. Send 3c postage. Tatham Coin Co., Springfield-50, Mass.

**GET** Profit and Pleasure in collecting old coins. Send 10c for 56-page illustrated coin catalog. You'll be delighted with it. Send for it now. B. Max Mehl, 374 Mehl Building, Fort Worth, Texas. Largest rare coin establishment in U. S. Established 56 years.

**FIVE** foreign coins from Switzerland, Belgian East Africa, etc. plus foreign banknote, only 10c with coin approvals. Littleton Coin Company, Littleton R2, New Hampshire.

**AMERICAN** Coins! Stamps! Extensively! Sullivan, 127-DD East Fourth, St. Paul 1, Minnesota.

**THOUSANDS** foreign coins. Lists 6c. Lauren Benson, 2526B Middle Road, Davenport, Iowa.

**MORGAN** Dollars: 1878-79-80-81-82 uncirculated \$2.00 ea. Illustrated coin catalogue 25c. Shultz, Box 746, Salt Lake 10, Utah.

**COIN** Magazine, 160 pages. Sample 35c. Numismatic, 7320 Milwaukee, Chicago 31.

**BARGAIN** lists, Indianhead cent, 10c. Economy Sales, 156-B Dean, Mansfield, Mass.

**UNCIRCULATED** Sets and Singles—Coin Supplies. Write for Prices. Louis Bell, Masonic Building, Decatur, Alabama.

**LINCOLN** Cents 1910-S, 1913-S, 1921-S, 1924-S, 1926-S, 1933-D all for \$2.00. Gosser, Box 34615, Los Angeles 34, California.

**COMMEMORATIVE** half dollar Uncirculated \$1.00. Bargain lists free. Sayers, 1000 East Unaka, Johnson City, Tennessee.

**MEXICAN** Gold and Silver Coins, Reasonable. Spranz, Box 168, Alamo, Texas.

**CONFEDERATE** \$100.00 bills, 3 for one dollar. Crisp, Uncirculated. Paul Trent, 509 N. Lee, Altus, Oklahoma.

**BEGINNERS** Hints, Standard Grading System, Three Uncirculated cents, Price List, all for 25c. Darleys, 3231 Nebraska, Dallas, Texas.

**UNCIRCULATED** Set Bargains—Roosevelt Dimes \$14.95; Franklin Halves \$27.50; Irish Animal \$2.95; General MacArthur \$2.95; Giant Bargain Catalogue 35c. Bebee's, 4514 North 30th, Omaha 11, Nebraska.

**EIGHT** different Liberty Nickels \$1.00. Five different Canadian Large Cents 50c. Six different U. S. Indian Cents 25c. Our price list of U. S. and foreign coins included with order. Bryson Stamp Company, 612 White, Toledo 5, Ohio.

## 28 STAMP COLLECTING

**TWO** \$5.00 US stamps plus 20 different, 10c with US approvals. Irwin Stamp Co., Box 1109, Brooklyn 30, New York.

**300 DIFF.** World wide 25c. Plus surprise packet, Mammoth packet list free. Econopackets, Box 168, Riverside 23, Calif.

**50 DIFFERENT** U.S. 5c with bargain approvals, lists. Bookman, Box 8245-S, Madeira Beach, Fla.



# POPULAR SCIENCE OPPORTUNITIES

**AMAZING Offer!** 200 U.S. stamps—including commemoratives, airmails, high denominations to \$1.00—only 10c to Approval Applicants!! Illustrated Bargain Lists free. Mystic Stamp Co., Dept. 55, Camden, New York.

**"WOW! 135 All Different Germany 10c."** Zeppelins, Semi-Postals, Airmails, high Values. Big bargain lists and approvals included. Jamestown Stamp, Dept. A9PSC, Jamestown, New York.

**ADD 10,000 different stamps of the World to your collection for less than 1/2c each.** \$5. down, \$4.25 month brings you book of 1000 each month for ten months. I. Huppert, 1972 East 18th Street, Brooklyn 29, New York.

**U.S. Classics—Over 50 Yrs. Old.** 15 Selected oldtimers. Missing in biggest collections. All 15 at less than 1c each. 10c with approvals. Jaro, Box 246-P, New York 8.

**225 STAMPS For only 10c!** This mammoth value includes Airmails, Pictorials; stamps from strange Countries cataloguing up to 25c each! Also Approvals. Mystic Stamp Company, Camden 55, N. Y.

**100 DIFF. Latin America 25c.** Packet list Free. Econopackets, Box 168, Riverside 22, Calif.

**FREE! Catalog!** About stamps. Illustrated. Free! The Stampmart, Hartford 1, Conn.

**FREE! Giant Catalog** Offering thousands of bargains Sent with beautiful approvals. Jamestown Stamp Co., Dept. E9PSC, Jamestown, New York.

**WORLD'S Largest Stamp (7 1/2 x 14 inches).** A real curiosity! Retail for 50c, only 3c to approval applicants. Tatham Stamp Co., Springfield 50, Mass.

**ICELAND 10 different beautiful stamps for only 10 cents to applicants for our good old fashioned approvals.** Old Colony Stamp Co., Dept. B, Milford, Conn.

**TRAVEL thru 50 countries!** A virtual world cruise! 50 stamps, each from a different country. Abyssinia to Zanzibar. Bargain unsurpassed! To new approval applicants, 5c. Avalon Stamp Co., Dept. S, Springfield, Mass.

**NUDES Set; unusual colorful approvals—10c!** Atlas, Eisenhower, Racine, Wisc.

**FREE Monaco Wedding Stamps.** Given Applicants For Approvals. Exotic, Box 482-SS, Coral Gables 34, Florida.

**GIGANTIC Collection Free—Includes Triangles—Early United States—Animals—Commemoratives—British Colonies—High Value Pictorials, etc.** Complete Collection plus Big Illustrated Magazine all free. Send 5c for postage. Gray Stamp Company, Dept. PR, Toronto, Canada.

**300 DIFFERENT given free with approvals.** Postage 3c. Particulars, Windsor Stamps, 8834 Cornell Ave., Chicago 17.

**513 DIFFERENT Worldwide from Cunha, Sudan, Libya, etc., cataloging over \$10 only 35c.** Approvals. Littleton Stamp Co., Littleton Q2, N. H.

**14,000 DIFFERENT yours on our streamlined, systematic Club plan for only 50c weekly.** Big shipment every two weeks. Details free. L. G. Ware, Baldwin 70, New York.

**MONACO Nudes 10c Approvals.** Barlicks, 1734 Seward, #17, Detroit 6, Mich.

**100 OLD U.S. Stamps between 1861 and 1935 \$1.00.** Rousch Stamps, 51 Chestnut, Mansfield, Ohio.

**WONDERFUL Offer Seven complete mint sets only 10c with approvals.** Reich (S26), 1033 Lawrence, Chicago 40.

**OLD scarce U. S. seconds on approval.** Slightly defective, bargain prices. Hearnfeld, Clintonhill Station, Newark 8, N. J.

**QUEEN Elizabeth Mint Sets! Barbados, Caymans, Dominica, Tristan, Gibraltar, Leewards.** 21 Bicolors—25c. Approvals. Gannon Stamps, Box 931, Canton, Ohio.

**500 WORLDWIDE Mixture 25c.** Big Value. Monjar, Fairmount, Cincinnati 14, Ohio.

**110 DIFFERENT U.S. 25c.** Airmails, Commemoratives, Specials, etc. Approvals. Swapmoore, Waverly, Illinois.

**3 SOUVENIR Sheets, (Regular 50c Value.) only 10c, with approvals.** Variety Stamps, 57-S Circuit, Newton Highlands 61, Mass.

**MINT stamp "grab boxes."** \$2.00 each. Elroy Foley, Northwood, Iowa.

**PENNY Approvals by country.** M. H. Hoerning, Merriam, Kansas.

**U.S. Stamps—at discount prices.** Giant illustrated catalogue. Only 10c. Raymax, 37-VX Malden Lane, NYC 38.

**100 DIFFERENT Spain 25c.** Penny approvals included. Reed, Box 980, Chicago 90, Illinois.

**U.S. Flag, \$5.00 Stamps, 25 different collection.** Only 10c. Approvals. Willet Stamps, Box 390-T, Mount Kisco, New York.

**FREE!! Absolutely Free!! Fantastic Fish Triangle.** Approvals. Beaman, Dayton, Tennessee.

**1000 DIFFERENT, catalog value over \$20.00, only \$1.00 with approvals.** Golden's, 6721 Eastwood, Philadelphia 49, Pa.

**FREE Sample—Interesting, informative, illustrated!** National Stamp News, Anderson, South Carolina.

**SAN Marino Latest bicolored Dog Commemoratives given.** "Approvals." William Deems, Ravenswood, West Virginia.

**50 PORTUGUESE Colonies, 25c Approvals.** Roy Farr, 88 Maple, Hamilton, Canada.

**ECONOMICAL 1/2-1-2c Approvals, 22,000 varieties available.** Dresel, 230-T Hamilton, Teaneck, New Jersey.

**MANCHUKUO 12 Different 10c.** Approvals. Crittenden, 709-A Westchester, Port Chester, New York.

**ALBANIA—Roosevelt Set Free—Approvals.** W-B Stamps, Wilkes-Barre, Pa.

**CANADA Queens, Wildlife, Commemoratives, 10 var. 10c with attractive approvals.** Rheume, 659, 11th Ave., Montreal, Can.

**PENNY Approvals jammed with Bargains.** For better values, try Putnam Stamp Company, Mahopac, New York.

**U.S. Catalog, Olympic Set, 1000 Hinges 25c.** Approvals. Buckey, PS-208 Ludlow Bldg., Dayton 2, Ohio.

**MONACO triangle set Free.** Approvals. Weitz, Box 83G, Orange, New Jersey.

**ASSORTED stamp packets: 50c or \$1.00 size.** Ellenada Stamp Service, 10408 Harvard Avenue, Cleveland 5, Ohio.

**FIRST Day's; First Flight; Navals; Covers, Approvals 10c.** Wm. Barr, 467 Oneida, Pittsburgh 11, Pennsylvania.

**40,000 VARIETIES Available on approvals 1/4c upwards.** Keigwin, Box 933D, Daytona, Florida.

**AMERICAN Commemoratives; Colonial Pictorials; Asian Topicals; with surprising approvals.** Bristol, Canton Center, Connecticut.

**FREE! Smallest Stamp, Giant, Midget Triangles.** Approvals. Delpage, Box 201P, East Paterson, New Jersey.

**UNITED States commemorative collection containing 33 different—10c.** Approvals. White, 516-W Avenue L, Brooklyn 30, New York.

**5000 DIFFERENT, Free Details.** Sample 25c. Flint, Box 66S, Fall River, Mass.

**EGYPT 10 Different Commemoratives 25c!** Approvals. Neal, 5950 Tower, Riverside, California.

**66 BRITISH Colonies 6c.** Approvals. Casto, Box 357, Dunbar, West Virginia.

**WEDDING, Pipeex, Triangles, Animals, Free With Approvals.** Choice, Box 366, Miami Beach 39, Florida.

**26 URUGUAY Cataloging 93c.** Dime. Approvals. William Torrance, Stony Brook, New York.

**SELECT U.S. on approval.** Mint, used. Kingsbury Stamps, Fairfax, Vermont.

**FREE Surprise Gift—Worldwide Approvals.** J&J, 123-G Monument, W. Medford, Mass.

**EXCITING, Colorful Olympic and Sport sets.** 14 Beautiful stamps. 10c with approvals. Elliott Norton, 105 Brees Blvd., San Antonio 9, Texas.

**\$10.00 CATALOGUE, \$1.00.** Approvals. Warden Company, Box 68, Sierra Madre, California.

**PHILATELIC Agencies—Directory Listing 100 Throughout World, \$1.00.** Bedard Publications, Box 637-B, Detroit 31, Michigan.

**10 BEAUTIFUL Triangles 10c.** With approvals. Levin Otis, San Andreas, California.

**EGYPT 25 Different 3c postage.** approvals. Bellet Stamps, Hazel Park, Michigan.

**100 FOREIGN, 20 U.S. Commemoratives, 10c.** Approvals. Weckerling, 3210B Hancock, Austin 3, Texas.

**EXCITING "Strange countries" packet.** Free with approvals! Saxon, Orange, California.

**30 DIFFERENT Commemoratives 1893 up 10c.** U.S. Approvals. K & B, Box 70, Brooklyn 23, New York.

**WORLDWIDE, 50 all different, absolutely free, just to introduce our incomparable approvals.** Kent Stamp Company, GPO Box 87, Brooklyn, New York.

**70 DIFFERENT U.S., including 35 Commemoratives 25c.** No approvals. Seidenberg, Appleton, Wisconsin.

**"MONACO Nudes" complete 10c.** Approvals. Royal Stamp Company, Tamaqua 2, Pennsylvania.

**DOMINICAN Republic, 10 pictorials, 10c with approvals.** Seminole Stamps, Box 1138-S, Coral Gables 34, Florida.

**1-2c EACH! Thousands of exciting worldwide stamps.** Free Examination. Cole, Box 223-G, Buffalo 21, N. Y.

**SURPRISE High Catalog Value packet, 10c.** Approvals. Valley Stamps, Box 414, Spring Valley, California.

**DISCOUNTS 60-75% Off—British Empire & Worldwide.** Mayer, Box 208, Forest Hills, New York.

**BEAUTIFUL triangles, flowers, etc., 10c with approvals.** Johnson, 1105 Ninth, Hawarden, Iowa.

**UNITED States, Canada, British Colonies', or Latin America Collections on Approval.** Enclose 10c. Peterson, 405 Empire Bank, St. Paul 1, Minnesota.

**FREE 101 diff. worldwide plus surprise gift.** Approvals. Fried, Box 475, North Hollywood 1, California.

**TURKEY Packets 300 \$3.00, 400 \$5.00, 500 \$7.00, 700 \$14.00.** Approvals on request. House of Stamps, 326 Audubon Avenue, New York 33, New York.

**IF you have a product or service that can be operated on a mail order basis, write me today. I will send you a Free Kit on "How To Make Money Out Of Classified Advertising."** Next issue will be November. Closing date September 25. Hurry—Do it Today! O. K. Kelly, Classified Adv., Mgr., Dept. A9, 353 Fourth Avenue, New York 10, N. Y.



# POPULAR SCIENCE OPPORTUNITIES

## 29 ANTIQUES, RELICS & INDIAN GOODS

**ARROWHEADS**, assorted: Thirty \$5.00, hundred \$15.00. Catalog 50c. Tilton Relics, Topeka 10, Kansas.

**ANCIENT** Grooved Stone Tomahawk \$3.00. 100 Ancient Arrowheads \$15.00. List Free. Lear's, Glenwood, Arkansas.

3 **WAR** Arrowheads. Scalping Knife \$2.00. List Free. Arrowhead, Box 1249, Hot Springs, Arkansas.

## 30 MINERALS & PRECIOUS STONES

**FIND** Uranium, tungsten, mercury, hundreds of other minerals with Mineralight. Free information kit on fun and profit in fluorescent minerals; hobby set. Write Dept. PS4, Ultra-Violet Products, San Gabriel, California.

**SAPPHIRE**, Topaz, tourmaline, garnet, peridot. Five uncut gem specimens, \$1.00. Ten polished gems, baroque shaped, \$1.00. Free big bargain list jewelry, gems, profitable, easy, do it yourself projects. O'Brien's, 1116B Wilcox, Hollywood 38, California.

**GEMCUTTING** — Silvercraft magazine. Learn to cut gems, make jewelry. Ads give sources equipment, gems for cutters, collectors. Free literature. Sample copy 25c. Lapidary Journal, Del Mar 3, California.

**GEMSTONES**, Mineral specimens for cutters and collectors. Every variety. Lowest prices. Free catalog. Plummer's, 4720 Point Loma Avenue, San Diego 7, California.

**URANIUM** Ore Only \$1.00. Send Remittance in cash, stamps, Money Order or check. Stewart Research Laboratory, Box 4427, Ft. Lauderdale, Florida.

**LARGEST** gem and mineral magazine tells how to have profitable fun with rocks, gems, jewelry. Monthly, \$3.00 year. Sample 25c. Gems & Minerals, Dept. S-9, Palmdale, California.

**TEN** New Mexico minerals \$1.50, six fluorescents \$1.00, five crystallized minerals \$1.00. Fools Gold 25c. Hartson, Winston 5, New Mexico.

**GEMS** 30 different Precious \$5.00. Twenty-five minerals, geology booklet \$2.00. Ten baroque gems \$1.00. Lists. Reed's, 4930 Palo Alto SE, Albuquerque, New Mexico.

**GOLD**, Silver, Copper Ore and Catalog 50c. Gemco, Eisner Avenue, Sheboygan, Wisconsin.

**HIGGINS'** Gems & Minerals. Finest quality. Free price list. 2117 Park, Salem, Oregon.

## 31 HOBBIES, COLLECTIONS

**INVENTING** can be an interesting and profitable hobby. Write for complete particulars. Institute of American Inventors, Dept. 30-E, 631-E St., N. W., Washington 4, D. C.

**FREE** three months subscription Leathercraft News, write Tandy Leather Company, Box 791-K21, Fort Worth, Texas.

65 **ASSORTED** Army Patches, Insignias, Ribbons \$1.00. Surprise Included, Lhgco, Dept. B, 19 East 16th Street, New York 3, New York.

**MINIATURE** soldiers; U.S. Marines, American Revolution, Civil War, Custer's Cavalry. Illustrated Catalog 25c. Bussler Miniatures, Dept. E, 40 Howe Street, Quincy 69, Mass.

**COLLECTORS** Matchbook covers. 100 Different unused \$1.00. Catalog 25c. Album \$3.00. Charles Edelman, 1311-P East 84, Cleveland 3, Ohio.

**WANTED** — Cigarette, tobacco cards. Write Charles Bray, East Bangor, Penna.

**WOOD** collections. 18 mounted wood specimens cut to show growth rings. \$1.00. Descriptive booklet included. Ryzelitz Minerals, Box 455, Golden, Colorado.

## 32 PHOTO FINISHING, PHOTOCOPIES, ETC.

**FREE** 5"x7" introductory enlargement with roll. Finest quality Jumbo dated prints in handy Super paks. 8 exposures 35c; 12, 55c. Globe Photo, Dept. PS, Box 3508, St. Paul, Minnesota.

12 **EXPOSURE** Rolls, 39c. Jumbo prints. Guaranteed work, one day service. Lincoln Studios, Dept. L, Box 13, Lincoln, Nebraska.

**PARTICULAR?** 8 Jumbos, 35c; 12—50c. Special: 35mm. 36 exp. \$1.25. Flash Foto, Box 36H, Brooklyn 4, N. Y.

**ROLL** Developed, 8 beautiful enlarged prints 25c; 12—35c. (Trial) 10 reprints 40c. Quick service. Willard's, Box 2554G, Cleveland, Ohio.

**SPECIAL** gift with first roll developed and 8 dated jumbo prints or 16 dated contact prints in wallet folder 40c. 12 exposure 50c. Owl Photo Co., Dept. 14, Weatherford, Oklahoma.

**MINIATURE** Photo of you on your stationery. Free information. James Snyder, 619-1B South Gibson Street, Princeton, Indiana.

8-HOUR service on deluxe jumbo prints, 8-exposure roll developed and 8 jumbo prints 40c. 12 exposure 55c. 16 exposure 70c. 35 mm. 20 exposure 75c. 36 exposure \$1.25. Jumbo Deckledge Reprints 4c each. Contact prints made if specified. Bay Photo Service, P. O. Box 210, Oakland, California.

**ENLARGEMENTS** heavyweight eight 5x7's or five 8x10's, \$1.00. Jack Koons, Huntington Mills, Luzerne County, Penna.

4 X 6 OR 3 1/4 X 4 1/2 oversize glossy prints, 8 exposures 40c. 12 exposures 60c. 16 exposures 80c. Hagner, 1318 West Columbia Avenue, Philadelphia 22, Penna.

**SPECIAL** Offer 8 Jumbos 25c. 12-35c. Thrifty Photo, PS96, Box 275, San Francisco 1, California.

**FREE** Roll Developing. Pay for prints only. Jumbos 4c. Regulars 3c. Failures Refunded. Rush Service. Guaranteed. Square Deal Photos, Hutchinson, Kansas.

**QUALITY** Kodak finishing, 8 exposure roll 35c; 12 exposures 50c; 16 exposures 60c. Reprints 4c. Fast service. Guaranteed quality. 40 years continuous operation. Be a satisfied customer. We do color. Send for mailers. Mail Order Photo Service, Box 297, Watertown, Wisconsin.

**NEW**, Bargain prices. 8 B&W Jumbos 39c. 12—55c. Film & Photo, Box 1114, Redondo Beach, California.

## 32A COLOR PHOTO FINISHING

35MM Color Slides From Any Size Kodacolor Negative, 35c each. \$1.75 minimum order. Color Transparencies printed and duplicated. Multi-Color, Dept. A, P.O. Box 54, Northridge, California.

**KODACHROME** expertly processed by Eastman Kodak Laboratories. 20 exposures, mounted, 2x2 slides, \$1.50 postpaid. 5-day service. Remit with film, no C.O.D. Mailers supplied free. Send for special offers. Fascolor, Dept. KPS, Box 86, Rochester 1, New York.

**EKTACHROME**—Ansochrome Processed—Mounted \$1.00. Fast Kodachrome—Kodacolor Service. Send for Prices. National Color Corporation, Box 55R, Northside Station, Atlanta 5, Georgia.

## 33 MOTION PICTURES, SLIDES, SOUND EQUIPMENT

**MOVIE** Camera Film 8 mm roll \$1.50. 16mm 100' \$3.00. Free processing. Better Films, 742 New Lots, Brooklyn, N. Y.

**SAVE 50%!** Guaranteed-fresh color, b&w movie film! 8mm, 16mm. Free catalog! Eso-H, 47th Holly, Kansas City 12, Mo.

**TAPE** recorders, tape. Unusual values. Free Catalog. Dressner, 69-02 174 Street, Flushing 65, New York.

**MICHIGAN** color slides. Free catalog. Hiawatha, Box 56PS, Ypsilanti, Michigan.

**FREE** Catalogues, 5,000 8-16MM Films. International Films, Greenvale, New York.

**TRAVELLERS**—Name the spot—we have the slide! 4000 2x2 slides and 1200 stereos. Kodachrome sent on approval. Send 25c (deductible from first order) for 40-page illustrated catalog. Ernest L. Wolfe, 1315 Westwood, Los Angeles 24, California.

**FREE!** Blackhawk's big sale catalog new and used 16mm., 8mm. films; 2"x2" color slides; used 16mm. sound projectors. Biggest stock in USA. Blackhawk Films, 1701 Eastin, Davenport, Iowa.

2x2 **SLIDE** from your favorite negative or picture for a stamp! Thirty-five Slides, Green Mountain Falls, Colorado.

**MOVIES**; Movies; Movies; 8 & 16mm B & W and Color. Free gift and list sent in well sealed envelope. G&M Films, Box 4161, Glendale, California.

## 34 CAMERAS, PHOTO SUPPLIES

20 **TO 75%** discounts everything photographic, giftware. Free catalogue. Dart, 3812E Atlantic Avenue, Brooklyn 24, New York.

**BASS** Says: Quality Cameras Since 1910. When in Chicago visit the Camera Cross Roads of the World... or write us for your favorite equipment, new or used. Satisfaction Guaranteed. Bass Camera Co., Dept. AG, 179 W. Madison Street, Chicago 2, Illinois.

**BUY** wholesale nationally advertised cameras, photo supplies, thousands other products at big discount. Free "Wholesale Plan." American Buyers, Hertel Station, Buffalo 16-P, N. Y.

**FREE!** Free! Free! Bargain Book Big Savings—Still, Movie Camera, equipment and supplies. Photographic Headquarters since 1899. Central Camera Company, Dept. 9-2, 230 S. Wabash Avenue, Chicago 4, Illinois.

8 **MM** moving picture film viewer pocket size M5 \$5.95 Prepaid. Aids Inc., Box 223, El Segundo 2, California.

**EVERYTHING** Photographic, Wholesale Price List. Earn Extra Income Be Our Agent. Verner Enterprises, 1240 Castle Hill Ave., Bx., New York City.

**PRESS** Card, Auto Stickers, Gain admittance. Set \$1.00. Erwals, Box 1241 P, Cincinnati 2, Ohio.

**DISCOUNTS** to 60%. Photo Equipment, Appliances, Typewriters. Free Catalog. Mailers Mart, Box 135-PS, New Rochelle, New York.

**DISCOUNTS** to 50% Photographic Equipment. N&N Distributors, 3826 N. Westnedge, Kalamazoo, Michigan.

## 35 MUSICAL INSTRUMENTS, SONG WRITERS & RECORDS

**ACCORDIONS**—Direct from importer—save 50% and more! Free trial. Lifetime guarantee. Trades accepted. Free Catalog. Write Accordion Manufacturers Outlet, Dept. 96P, 2003 Chicago, Chicago 22, Illinois.

**WANTED!** Poems for musical settings. Write Songwriters' Service, Clifton, N. J.

**POEMS** Wanted for New Songs. Send poems. Immediate consideration. Crown Music Company, 1472-P Broadway, New York City 36.

**FREE** Records of your songs—Your words—My Melody. Free information. Johnny Mack's Melody Mart, 1094 West 39th Street, Dept. K, Los Angeles 37.

**SONGWRITERS:** Song Poems Wanted. \$100 Advance royalty paid writer of best song selected each month. Hollywood Tunemiths, Dept. N, 1609 Vista Del Mar, Hollywood 28, California.

**SONGPOEMS** and lyrics wanted. Mail to: TinPan Alley, Inc., 1650 Broadway, New York 19, N. Y.

**POEMS** Wanted For New Songs. Send Poems. Free Examination. Immediate Consideration. Songcrafters, Arcade Station, Nashville, Tennessee.

**SONGWRITERS!** Protect your ideas! Hold all poems, songs! Write for safe, correct procedure! Song Service, Dept. PS, 333 W. 56th, New York 19.



# POPULAR SCIENCE OPPORTUNITIES

**SONGWRITERS:** Recording company wants new songs. Royalty basis. National sales, promotion if selected. No charge for melodies. Send material. Music Makers, Dept. G-25, Box 2507, Hollywood, California.

**WHOLESALE Catalog!!** 30-80% Discounts! Appliances, Musical Instruments, Typewriters, Tools, Watches, Jewelry, Cameras, Housewares, etc. Consolidated Distributors, 1300-35 Main, Clifton, New Jersey.

**SONGS And Poems wanted.** Records made. Five Star Music Masters, 646 Beacon Building, Boston.

**PHONOGRAPH Records Cheap.** Catalogue. Paramount, SD-313 East Market, Wilkes-Barre, Pennsylvania.

**SONGWRITERS Free Booklet Successful Songwriting.** Gateway Songs, Box 2470, Hollywood 28, California.

**1956 ACCORDIONS — Wholesale.** Free catalog. American Accordion Center, PS-9, 5329 Belmont, Chicago.

**DISCOUNTS—Instruments, accessories.** National Brands. Tempo Music, 37 Cutler, New London, Connecticut.

**YOUR Magic Hour and six other good songs for \$1.50.** Lucky Seven Song Service, 136 Marsden St., Springfield 9, Massachusetts.

**SONGWRITING Aids! Music Courses! Supplies! Free literature.** Cocard, Box 105-P, Massapequa Park, New York.

**SONGS Into \$\$\$\$—Share \$29 million dollars yearly for New Songwriters,** song-poets. Songs composed, published, promoted by largest firm. Information, appraisal Free. Send to Nordyke Publishing Company, 6000 Sunset Blvd., Hollywood 28, PS, California.

**LEARN "Extra" Chords Used by Modern Guitarists.** Details Free. Chordomatic, Box 6096, Albuquerque, New Mexico.

## 36 RADIO, TELEVISION, SUPPLIES & EQUIPMENT

**ARMY Throat Microphone New 50c.** Surplus, Box 118, Jersey City 4, New Jersey.

**FREE 356 Page 1957 Radio—TV—Hi-Fi—Electronics Catalog!** World's largest stocks, lowest prices. Everything for experimenters, builders, amateurs, servicemen. Latest build-your-own famous Knight-Kits, Hi-Fi, phonos, recorders, P.A., TV accessories. Thousands of parts, tubes, test instruments, tools and books. Write for Free copy! Allied Radio Corp., 100 N. Western Ave., Dept. 34-J-6, Chicago 80, Illinois.

**MAKE Long distance crystal radio that works anywhere.** Fully illustrated booklet 15c. Money back guarantee. Francis, Box 5963, Cleveland, Ohio.

**CRYSTAL radio kit \$1.00,** pre-assembled \$1.25, phone \$1.75; catalogue. Clearco Crystal Company, 2966 North 4th, Milwaukee 12, Wisconsin.

**"20 CRYSTAL Set Plans" (SW record 5800 miles) and Experimenter's catalog—25c.** Laboratories, 328-T Fuller, Redwood City, California.

**ELECTRONIC Brain, build and study at home.** E.B.E., 1015 Atkin Ave., S.L.C. 6, Utah.

**EXPERIMENTERS Radio Bread Board With 2 Diodes, 5 Crystals, 5 Coils Circuits & Condenser \$2.00 Postpaid.** With Phone \$4.00 Postpaid. Small Radio Lab, 1331 Tyler, Topeka, Kansas.

**TRANSISTOR pocket radio, germanium diode, loopstick, ready to listen \$8.13.** Bogin, 2611 West Second, Brooklyn 23.

**RADIO Kit, Tube, Parts, \$2.00; Crystal Radio Kit \$8.00.** Cozzo, 2059 60th Street, Brooklyn 4, New York.

**FREE! Newark's New 1957 Catalog.** A postcard will bring you 304 pages full of the latest releases and largest selections of the world's finest Radio, TV, Amateur, Electronics and High Fidelity Equipment. Write today to: Newark Electric Company, 223 W. Madison St., Dept. PS-9, Chicago 6, Illinois.

**FREE Literature Potential Radio.** 446 Crown Street, Brooklyn 25, New York.

## 37 BUSINESS OPPORTUNITIES

**OPERATE profitable mail order business.** Write Walter Service, 4159-B East 112th, Cleveland 5, Ohio.

**START A Buying Service.** buy wholesale thousands nationally advertised products. Make big profits selling at sizeable discounts. Postcard brings details. American Buyers, Hertel Station, Buffalo 16-N, N. Y.

**IMPORT-Export! Opportunity, profitable, world-wide, mail-order business from home, without capital; or travel abroad.** Established World Trader ships instructions for no-risk examination. Experience unnecessary. Free details. Mellinger, F691, Los Angeles 24.

**WE Love our mailman.** He leaves over \$1,000.00 monthly in our rural mailbox. My college professor husband drafted a scientific home mailorder method. We bought a Texas ranch, live as we always wanted. Now we sell the "Ranch Mailorder Method." Operates anywhere. Inquire: Eveningshade Ranch, Helotes, Texas.

**GROW Orchids at home—profitable—fascinating.** Year 'round, Maine to California. No Greenhouse. Gorgeous Cattleyas, Cymbidiums, etc. Successful home grower shows you how. Free—full details. Flowerland, 4622 Wilshire, Los Angeles 5.

**BREED Rare Tropical Fish at home.** Earn Big Money! Learn Secrets! Help fill huge demand. Amazing Opportunity! Free Plan. Tropical Fish Breeders, Los Angeles 61, Calif.

**NEWEST Spare, Full-Time Home Business, \$5 to \$10 hour possible.** Paint with suede—the finish with touch And eye-appeal. Beautify auto dashboards, signs, radios, toys, figurines, lamps—1001 others. Complete, Step-By-Step Instructions sent for no-risk examination. Free details. Coast, Los Angeles 61.

**BE appointed state notary public now.** Write—Stationers, Helotes, Texas.

**YOUR Own name brand business.** No investment; no inventory. Part time or full time. Sell famous brands of appliances, housewares, silverware, radios, vacuum cleaners, lamps, tools, clocks, watches, jewelry, etc., etc., over 1,000 items. Join thousands of successful independent dealers. Send for Free catalog and dealer price list. H. B. Davis Corp., Dept. F, 145 W. 15 St., New York City.

**FIX Typewriters.** Inexpensive home course teaches Factory Secrets. Free Booklet. Write, Typewriter, Tarentum 2, Pennsylvania.

**WANT To Make Big Money At Home?** \$5 profit in an hour possible with invisible reweaving. Make tears, holes disappear from clothing, fabrics. Steady year-round demand from cleaners, laundries, homes. Details Free. Fabricon, 8338-S Prairie, Chicago 19, Illinois.

**WHOLESALE—Get the big merchandise—furniture, appliances, TV's, clothing, tools, auto accessories—most anything.** Save half. Literature Free. Associated Wholesalers Service, 1016-C Starr, Burlington, Iowa.

**ONLY new Moneymaking Plan!!** We sell your products. You build luggage and cases at home—we supply instructions—materials—tools—everything. Free details. Casecraft, 807-DK Sunset, Los Angeles 12.

**BRUSH Plating Outfits for plating articles in the home and shop.** No tanks necessary. Good income spare or full time. Free particulars. Gunmetal Co., Ave., E. Decatur, Illinois.

**\$70 WEEKLY—Home, spare time.** Simplified mail bookkeeping. Immediate income—easy! Auditax, 34757D, Los Angeles 34.

**LEARN Real Estate by Listening to Records.** Lee Institute, Brookline 46, Massachusetts.

**BECOME Tax Consultant.** Graduates earn \$3,000 every tax season preparing returns evenings. State approved. Union Institute, 68 Hudson, Hoboken 1M, N. J.

**WHOLESALE Catalog!!** 30-80% Discounts! Appliances, Musical Instruments, Typewriters, Tools, Watches, Jewelry, Cameras, Housewares, etc. Consolidated Distributors, 1300-15 Main, Clifton, New Jersey.

**EARN to \$90.00 and more weekly spare-time.** Mailorder operated—this business works. Beginners test proves profits. Information and plan free. Barriskill, 2131 University, Berkeley 4, California.

**GROW Mushrooms.** Cellar, shed. Spare, full time, year round. We pay \$3.50 lb. We Paid John Betts \$7,977.76, he started as amateur. Free Book. Mushrooms, Dept. 178, 2954 Admiral Way, Seattle, Washington.

**POPCORN and Potato Chip Equipment.** Eakins, Box 933-B6, Springfield, Ohio.

**11,000 NEW Prospects Daily.** Baby record books, shoes, albums. Sell mailorder. Everything furnished. Free literature. No-Co-Ro, Capito'a, California.

**"HOW to Start a Business" booklet sent Free!** If you Know any Trade—go into business for yourself! Learn the 9 easy steps to follow. We've guided 5,000 others to success. Revealing Free Booklet yours for the asking! Write! National Business Consultants, Office SR, Los Angeles 61, California.

**ADVERTISING book matches—Cash in on big demand—sell Union Label matches.** Cuts for all businesses and political parties—Free powerhouse selling kit—low prices—protection guaranteed on repeat orders—Cash Commissions. Superior Match Co., Dept. PX-956, 7530 Greenwood, Chicago.

**AMBITIOUS? We establish you in your own business,** supply catalogues, circulars, sales letters, etc.; ship orders under your name, paid or C.O.D.; show you exactly what to do. Sell by mail, through agents or personally. Catalog, plans, details absolutely free. Rush postcard to Topval Corp., Lindenhurst 821, New York.

**MAKE Fast Puck.** Sell Nationally advertised merchandise. Free Wholesale Catalog. Harry Cohon & Sons, Inc., 1069-PS9 Utica Avenue, Brooklyn 3, New York.

**MAIL Order—advertising agency executive reveals sensational no-risk advertising and merchandise methods.** Start in office or home—minimum capital—positive profits. Free details! Impact! 2108 Payne, Dept. 2-9, Cleveland 14, Ohio.

**BUY Wholesale! Resell At Big Profits.** Sell nationally advertised brand name merchandise. Appliances, Cookware, housewares, watches, jewelry, dry goods, clothing, sporting goods, toys, gifts, etc. Build a profitable repeat business. Send for Free 124 page illustrated color catalog with separate confidential cost sheet. Merit Home Products, Dept. PS-9, 107 Manhattan Avenue, Brooklyn 6, New York.

**YOU can Make Money for Christmas in spare time taking magazine renewal subscriptions.** No capital or experience necessary. All supplies furnished. Write Today! McGregor Magazine Agency, Dept. 510B, Mount Morris, Ill.

**MAILORDER! Succeed in mail order with something new that everyone wants.** Free information. MCB, 1221-C West Minnehaha Parkway, Minneapolis 19, Minn.

**IMPORT your own products in small lots.** Also, start profitable mail order business using International Dropshipment method. Capital unnecessary. Free details. Ga. Overseas Trading Co., Dept. D.3, 715 Persons Bldg., Macon, Georgia.

**TO \$100.00 weekly.** Sparetime, home operated mailorder business. Successful "Beginner's" plan. Everything supplied. Lynn, 10420-C National, Los Angeles 34.

**OPPORTUNITY to earn \$15,000-\$30,000 annually.** Franchise protected. Granted on \$12,500 guarantee. Live at home. No merchandise to buy. Selfemployed. One of most exclusive and noncompetitive Businesses in United States and Canada. Send for free explanatory booklet. Harrell and Company, Box 8-D, Louisville, Illinois.



# POPULAR SCIENCE OPPORTUNITIES

**BIG Profits Raising Fishworms and Crickets.** Free Literature. Carter Worm Company, Plains, Georgia.

**SAVE 20% to 50%.** Buy wholesale! Nationally advertised merchandise. Free details! Beecher Sales, Box 2161-E, Cincinnati 1, Ohio.

**"MAILORDER Laws and Regulations".** Discusses federal, state, local licenses, necessary taxes, legal requirements governing mailorder businesses. \$1.00. "Mail-order Rules for Beginners". Additional helpful information. \$1.00. Play Safe. Order both. Tasker, 105 East Custis, Alexandria, Virginia.

**MAKE flexible molds.** Cast figurines, plaques. Free sample. Tooker, 630-A Chestnut, Hamilton, Ohio.

**MAKE 80c Profit On Every Dollar Selling Merchandise By Mail.** Everything furnished. Write: Eastern, Box 142-B, Boston 24, Massachusetts.

**\$10.00 PER hour net profit in monument cleaning business.** Free Details. X-Pert Monument Cleaning Company, 486 Potomac Avenue, Buffalo 13, New York.

**NEW mail order method.** Details. Chester, Box 865-A, Sea Cliff, New York.

**LIQUID Rubber.** Make flexible molds. Free Sample. Chaney, 1130 E. 16th St., Jacksonville 6, Fla.

**\$1,000 MONTHLY possible in collection agency business.** Free details. Write Cole Associates, Syracuse 2, New York.

**MAKE Profitable Products—Sell Mail-order—Catalogue free.** International, 6347 Parnell, PS9, Chicago 21, Illinois.

**AMAZING successes through franchises!** Become exclusive distributor, agency operator. Nationwide opportunities. Request details. National Franchise Reports, 333 North Michigan, Chicago 1.

**OPERATE restaurant or diner.** Free booklet reveals plan. Write Restaurant Arts, BU-49, Fremont, Ohio.

**\$1.00 STARTS you in the mail order business.** Free advertising. No stock necessary. Big profits. Simply follow instructions. Send \$1.00 today! Better Products, Box 454-H, G.P.O., Brooklyn 1, New York.

**GROW Expensive Herbs For Us!** Big Profits Home-Business of your own. Year around profitability! We supply everything necessary! Send for Free Rare Seeds And Revealing Plan. National Herb Exchange, Dept. SR, Gardena, California.

**WASTE Materials everywhere are easily turned into valuable building materials** without formulas. Free trial. Bays Laboratory, Oklahoma City 9.

**NATURAL molding rubber, extra thick.** Free sample. W. Wooley, 115-B, Donald, Peoria, Illinois.

**CASH from Sawdust (seventy methods), Tin-cans (thirty methods), Newspapers (eighteen methods).** Instructions 50c each. All three \$1.00. Charles Company, 12-EXV, Norwood, Ohio.

**EARN \$10,000 yearly raising Angora Rabbit Wool for us.** Information, 25c coin. American Angora Company, Malta 1, Mont.

**SPECIALIZED Magazines.** 5,166 different publications—all businesses, trades, professions, sports, hobbies, etc. Write today for Free List. Commercial Engraving Publishing Company, 34S North Ritter, Indianapolis 19, Indiana.

**MAKE Money clipping newspaper items for publishers.** Devised plan explains procedure. Write: Newscraft, PS-983-E, Main, Columbus 5, Ohio.

**WHOLESALE catalogue!** Appliances, cameras, watches! Cam Company, 6806PS-20th Ave., Brooklyn 4, New York.

**EXCELLENT Mail Proposition!** Compelling Literature. Decco Service, Box 3315-S, St. Louis 3.

**PLASTERCRAFT molds, liquid rubber, plasters, flocks, candle supplies.** Catalog and manual free. Jayhawk Plasters, Blue Rapids, Kansas.

**WHOLESALE catalogue!** Appliances, cameras, watches. D'Auria, Box 355-PS, Jackson, Michigan.

**WORK at home—Sensational new plans for beginners.** Free details. Shields, Box 164S, Miami 38, Florida.

**GET the real dope on raising needed capital.** Write Enterprise Bureau, Syracuse 2, New York.

**LEARN Correspondence School Operation & Management** then put your own ideas across. Many opportunities. Send for qualifying data. Write Director, P.O. Box 652, Encino, California.

**"I Earn \$400.00 a week."** I've learned an amazing new method of printing, colorful signs, banners, cards, posters, glassware—anything. No printing press or other expensive equipment is necessary! Big Money-Making opportunity for anyone. Write for my secret and Revealing home-business plan—you'll be amazed! Mr. Anderson, Screen Print Company, PS-9, Los Angeles 61, California.

**\$250 WEEK cleaning venetian blinds.** Patented Machinery. Free literature. Robinson, 7213A, Indianapolis 1, Indiana.

**YOUR Own Mailorder Business started at home.** Spare time. Profitable, fascinating. We show you how, supply everything. Free details. Boro Sales, Dept. PS, 1008-A North Kentucky Ave., Atlantic City, New Jersey.

**YOUR envelopes addressed accurately, reasonably. Fast service.** We have capable addressers in your city. Glenway System, Box 6568, Cleveland 1, Ohio.

**"ESTABLISHED Mail Order Business"** for you. Up to 75% commissions. No merchandise investment. Plans Free with 12 months' subscription to "Mail Gazette." \$2.00 Postpaid. Linco, Box 3215-B, Tulsa 8, Oklahoma.

**REBUILD batteries; Make rubber stamps; Repair dolls.** Catalog "60 ideas" free. Universal, Box 1076-B, Peoria, Illinois.

**PREPARE Advertising Letters,** mail to our name lists. \$50 weekly possible. Adams, 11603-N Paramount, Downey, California.

**BUY Wholesale! Resell at big profits.** Brand name merchandise—Appliances, cookware, housewares, watches, jewelry, dry goods, clothing, sporting goods, toys, gifts, etc. Free illustrated color catalog listing over 1001 items with confidential cost sheet. Merit Home Products, Dept. PS-9, 107 Manhattan Ave., Brooklyn 6, New York.

**START Your Own Business.** Local or Mail Order, folders describe 137 money making plans free. Max-Inman Company, 4187 Westport Rd., Louisville 7, Kentucky.

**FREE Folio "\$5,000-\$45,000; Unlimited Vacations."** No merchandise, equipment. Unknown! Work home—sparetime! Haylings—S-16, Carlsbad, Calif.

**A Monthly repeat business which you can operate in your own community.** For the average working man. For free details write Grasek, P.O. Box 494, McKeesport, Pennsylvania.

**SELL By Mail. Unlimited Earnings.** Write Scewe, 121-H Sanford, Brooklyn 5, New York.

**MINK Raising information free.** Complete. Lake Superior Mink Farm, Superior E E5, Wisconsin.

**BUY Wholesale 750,000 Products.** Free Details. Carter, Box 6011-E, Chicago 80.

**MIMEOGRAPHING Pays sensational local profits.** Exciting secret plans exposed! Write: Moezel Mimeo Shop, Bonham, Texas.

**\$26,500 SALES in two weeks!** Amazing radio-mail order method. Free details. Broadcast Service, 1412-SX Great Northern Building, Chicago 4, Ill.

**DISCOUNTS 20-50%, thousands nationally advertised products; own use; sell others at big profits.** Postcard brings free information. National Wholesale Service, Dept. M, Box 397, Buffalo 5, New York.

**MAIL Catalogs Featuring Real Merchandise.** Charles, Box 32-S, New York 63, New York.

**FREE Bulletin—\$6000-\$60,000; Unknown Self Working Family Security Plan.** No equipment, Merchandise. Sound! No risk! Unlimited possibilities! Baugh-PS, 1514 "F" Street, Sacramento, California.

**MONEY in new greaseless doughnuts.** Start in kitchen. No smoke. Sell stores. Free recipes. S. Ray Co., 3605 South 15 Ave., Minneapolis 7, Minn.

**MAILORDER! Start spare time! Proven Ways for beginners.** Everything furnished. Rose, Box 6077, Kansas City 10, Missouri.

**MAKE moneymaking products.** Hire others. Free particulars. Watson, Box 4775, Kansas City 9, Missouri.

**EXCEPTIONALLY Profitable Opportunity in Tape Recording.** Write: Baron's, Lynden, Washington.

**\$250 WEEK reported! Free book "505 Odd, Successful Businesses."** Work home! Expect something Odd! Pacific-36C, Oceanside, California.

**WORLD-Wide! Import-Export Business from home without capital.** Receive beautiful samples; gifts from abroad! Experience unnecessary. Free Information. Weyman, (C-168) 939 Vanderhoeven, San Antonio 9, Texas.

**1001 MANUFACTURING Opportunities.** Fortunes made daily... valuable information free! All tools, POB 465, Chicago 90.

**SELL New Nationally Advertised 17 Jeweled watches.** Your cost \$8.95. Watch Sets \$5.95. Result Sales, (Dept. S), 580 Fifth Ave., New York.

**\$200 WEEKLY applying Sun-Shield Miracle Window Tint.** Small investment. Free details. Trans-World, Dept. P, 1707 N. Alexandria, Los Angeles 27, California.

**COLORGLAZED Concrete pottery made without molds.** Patented method. Cemetery products, novelties, tiles. Basement leak-sealing. Money-making projects. Booklet, details free. Men only. National Potteries, Grand Rapids, "Minnesota."

**"EVERYBODY Likes Candy."** Make professionally home. (Our 45th Year.) Ragsdale Candies, East Orange, N. J.

**WHOLESALE Buyers Service! Buy Nationally Advertised Merchandise Wholesale.** Sell way below Retail. Fabulous profits. Write: Wholesale Buyers, Box 22-SJ, St. Louis 3, Missouri.

**60% PROFIT Cosmetics.** 25 Day Up. Hire others. Samples, details. Studio Girl Hollywood, Glendale, California. Dept. 1169H.

**\$46 FROM Square Foot Plywood with your Jigsaw.** Woodsart, Bridgewater, Massachusetts.

**REAL opportunity for own Mailorder Business.** Free details. Mailord Company, Dept. B, Southampton, New York.

**IMPORT-Export Opportunities.** Terrific profits, little capital needed. Lists of foreign and domestic manufacturers and exporters. Mail Order laws and regulations, instructions, complete \$1.00. Details stamp. Will Riet Company, 107 E. Ilford Avenue, North Arlington, New Jersey.

**MONEYMAKING mail order ideas, sources, products, projects.** Authentic, reliable. Free information. Write: Business-Fax, Box 1024-B, Galveston, Texas.

**SLAT-O-Mat cleans Venetians!** Make money. Details free. East American Supplier, Box 451, Niantic, Conn.

**IF you have a product or service that can be operated on a mail order basis, write me today.** I will send you a Free Kit on "How To Make Money Out Of Classified Advertising." Next issue will be November. Closing date September 25. Hurry—Do it Today! O. K. Kelly, Classified Adv., Mgr., Dept. A9, 353 Fourth Avenue, New York 10, N. Y.

## 38 MONEYMAKING OPPORTUNITIES

**START A Buying Service.** buy wholesale thousands nationally advertised products. Make big profits selling at sizeable discounts. Postcard brings details. American Buyers', Hertel Station, Buffalo 16-O, N. Y.



# POPULAR SCIENCE OPPORTUNITIES

**MEN—Women!** Start Money-Making Plastic Laminating Business at home in spare time. Material that costs 11c brings back \$2.58. No canvassing or selling but mail orders bring in \$20 a day. Write for full particulars Free. Rush name on postcard to Warner, Room 89, 1512 Jarvis, Chicago 26, Illinois.

**SELL** Titania Gems; far more brilliant than diamonds. Catalog free. Diamonite, 2420-S 77th, Oakland 5, California.

**GROW** Mushrooms. Cellar, shed. Spare, full time, year round. We pay \$3.50 lb. We Paid John Betts \$7,977.76, he started as amateur. Free Book. Mushrooms, Dept. 179, 2954 Admiral Way, Seattle, Washington.

**SELL Yourself—Sell Neighbors.** Aluminum Car-Portes-Patio-Covers. Beautiful Baked Enamel Colors—Factory Prices. Write "Bob", Box 4205, Tampa, Florida.

**WHOLESALE** Catalog!! 30-80% Discounts! Appliances, Musical Instruments, Typewriters, Tools, Watches, Jewelry, Cameras, Housewares, etc. Consolidated Distributors, 1300-17 Main, Clifton, New Jersey.

**START** Big-Pay business at home in spare time. No experience needed to operate little table-top machine for bronzing baby shoes. Make \$5.46 profit on every pair. Full particulars free. Send postcard to Mason, 1512 Jarvis, Room 89, Chicago 26, Illinois.

**WANT** To go in business for yourself without capital? We show you how. Start part time your own home. Postcard brings complete details absolutely free. Topval Corp., Lindenhurst 422, New York.

**MAKE** \$5,000 yearly sparetime raising mink, chinchillas, nutria, etc. Free booklet reveals proved plans. Write: Furs, 588 Mt. Pleasant Road, Toronto 2, Canada.

**YOU** can Make Money for Christmas in spare time taking magazine renewal subscriptions. No capital or experience necessary. All supplies furnished. Write Today! McGregor Magazine Agency, Dept. 510C, Mount Morris, Ill.

**START** a profitable subscription business in spare time! We need men and women (young or old) as representatives for all leading national magazines. Liberal commissions on all subscriptions. Supplies free. Send this ad with your name and address to: Agency Bureau, Dept. PS, Hearst Magazines, 250 West 55th Street, New York 19, New York.

**EARN** Money immediately repairing electric clocks without experience. \$3. investment. Details Free. H. Puthuff, Box 1504, Santa Rosa, California.

**FORTUNE** Possible raising fishworms and crickets. Free Information. Carter Farm-11, Plains, Georgia.

**SELL Yourself—Sell Neighbors** Aluminum Awnings—Beautiful Baked Enamel Colors—All Sizes. Factory Prices! Write "Groff," Box 10254, Tampa, Florida.

**DETECTIVES—Work home—Travel.** Experience unnecessary. Detective Particulars free. Write, Wagoner, P-125 West 86th, New York 24.

**MAKE** Money Writing Short Paragraphs! No tedious study. I tell you what to write, where and how to sell; and supply list of editors buying from beginners. Many small checks add up quickly. Write to sell, right away. Send for free facts. Benson Barrett, Dept. C-86-W, 7464 Clark, Chicago 26.

**MAKE** \$100.00 weekly mailing catalogs. Cash commissions paid. Products, 2342 Washington, Chicago 12, Illinois.

**SPARETIME** Addressers Make \$25.00—\$50.00 Weekly. Details Free. Glenway, Box 6568, Cleveland 1, Ohio.

**MEN** and women wanted to start home business in spare time with little table-top rubber stamp machine. Easy to earn up to \$9.80 an hour without previous experience. Full particulars Free by mail. Send postcard to Roberts, 1512 Jarvis, Room 89, Chicago 26, Ill.

**PHOTO** Christmas Greetings Bring Big Profits in your spare time. Show Whitehall's fast selling Christmas Greetings, Everyday Cards, Personalized Stationery, Napkins, Gifts, Samples on approval; 1/2 Price Feature Offer. Make big money fast. Whitehall Studios, 496 Cleveland, Elmira, New York.

**MAKE** money addressing. Literature 3c. Phithon, 8007 SE 65, Portland, Oregon.

**HOMEWORKERS!** Write for exciting details concerning addressing and mailing. Temple Company, Muncie 7, Indiana.

**\$1000 MONTHLY!** Hard work, but your own business. Details \$1.00. Box 1215, North Decatur, Georgia.

**MAKE** Money from Trash. Details \$1.50. K. Binns, 29 North Hancock, Madison, Wisconsin.

**100 MAIL** Order Plans—\$2.00. Schwartz, 299 East 162nd, New York City.

**NEED** Products? Salesmen? Markets? Details free! Sayper Associates, 1129-B Vermont, Washington 5, D. C.

**BIG** Profits stamping social security plates. Catalog free—General Products, 188PS1 State, Albany, New York.

**LEARN** Technical Metaphysics and insure your future. Easy, inexpensive correspondence course. Simplest method known. Diploma. Write: Premier College of Technical Metaphysics, 2532 McKenzie St., Vancouver 8, B.C., Canada.

**LADIES** Address Mail Our Advertising Postcards. Pen or Typed. Send Self Addressed Stamped Envelope. Box 767, Asheville, North Carolina.

**MAKE** money Addressing envelopes sparetime. Glenway, Box 6568, Cleveland 1, Ohio.

**\$200. WEEKLY** possible, using inexpensive 3D camera. Experience unnecessary. Complete Instructions \$2.00 postpaid Refundable. Ruth, 4519 N. Frace, Tacoma, Washington.

**GET** Cash Orders in Every Mail. Keep Every Cent. Write—Baker, Box 726-S, Sugarland, Texas.

**FREE** Folio "\$5,000-\$45,000; Unlimited Vacations." No merchandise, equipment. Unknown! Work home—sparetime! Haylings—S16, Carlsbad, Calif.

**AGENTS, Salesmen, Others.** 100% increase in sale in 90 days. Your total cost self addressed stamped #10 manila envelope or 10c sent Salesbooster, 3000 Booker, Fort Worth 11, Texas.

**MAKE** Money—Sell authentic reproductions Declaration of Independence, other historical documents. Details free. Fox, 511 Roscoe, Chicago 13, Illinois.

**HOME** workers. Seeking easy profits? \$1.00 brings proven facts on home opportunities. Miller, East Second, Birdsboro, Pa.

**FREE** Catalog! Nationally advertised Watches, Jewelry, Appliances, Gifts. Buy Wholesale for Personal Needs or Resale. Louis Perloff, Dept. PS, 733 Walnut Street, Philadelphia, Pennsylvania.

**LOOKING** for something informative? Home Work, Mail Order Plans, and Trade Magazine 25c. Warren Company, P.O. Box 11, Glenview, Illinois.

**FREE** Bulletin—\$6000-\$60,000; Unknown Self Working Family Security Plan. No equipment. Merchandise. Sound! No risk! Unlimited possibilities! Baugh-PS, 1514 "F" Street, Sacramento, California.

**DOLLARS** daily. Clip articles from newspapers. Free details. News Service, 3252 W. 84th, Cleveland 2, Ohio.

**\$600.00** A month plan free. Plan and copy of "Money Getters Bulletin" 25c. Globe-A, 40, Adelaide St. Sta., Toronto, Canada.

**THOUSANDS** of Moneymaking tips, home profit Plans! Free Folder! Synco, 1844 Drollinger, Wichita 18, Kansas.

**WE** pay cash for homework. No selling. Merco, Box 8032, Nashville 7, Tenn.

**\$35.00 WEEKLY** addressing envelopes. Instructions \$1.00 Refundable. Adservice, Spring Valley, New York.

**FREE** Book "505 Odd Successful Businesses." Work Home! Expect something Odd! Pacific-35c, Oceanside, Calif.

**\$1,000-\$10,000 YEARLY** Possible, operating home Mailorder Business! Free literature describes splendid money-making ideas, some using just pen—typewriter! Rush stamped, self-addressed envelope today! Zimmerman, 28-S, Schuele, Buffalo 15, New York.

**60% PROFIT** Cosmetics. \$25 Day Up. Hire others. Samples, details. Studio Girl Hollywood, Glendale, California. Dept. 1169H.

**PREPARE** Income Tax Returns at home full or spare time. \$5.00—\$10.00 per hour. Practical Instructions amazingly simplified. No Lessons. Particulars free. Fox Business Publications, Box 1265-B, Peoria, Illinois.

**IF** you have a product or service that can be operated on a mail order basis, write me today. I will send you a Free Kit on "How To Make Money Out Of Classified Advertising." Next issue will be November. Closing date September 25. Hurry—Do it Today! O. K. Kelly, Classified Adv., Mgr., Dept. A9, 353 Fourth Avenue, New York 10, N. Y.

## 38A BUY IT WHOLESALE

**WHOLESALE** Catalog!! 30-80% Discounts! Appliances, Musical Instruments, Typewriters, Tools, Watches, Jewelry, Cameras, Housewares, etc. Consolidated Distributors, 1300-25 Main, Clifton, New Jersey.

**ELECTRIC** Guitars, amplifiers, wholesale. Free catalog. Carvin, PS287, Covina, California.

**\$12.95 KITCHEN** Tool Set \$5.95. Agents Wanted. Dickie, Quitman, Arkansas.

**BIG** Multicolor Wholesale Catalog! Appliances, cameras, tools, watches, jewelry. Name brands. Huge discounts. Postcard: Selbyco, Decatur 172, Illinois.

**BUY** for your entire family at less than wholesale. Write for free club membership card entitling you to unbelievable bargain prices on all needs. Fotopak, Dept. PS956, Box 535, Rochester 2, New York.

## 39 FORMULAS, PLANS, ETC.

**FORMULAS—All** kinds. Latest products. Literature free. Kemico, Park Ridge 15, Ill.

**LARGE** formula catalog free. Anything analyzed \$35.00. Western Chemical, Salem, Oregon.

**SEND** \$1.00 for illustrated complete plans for game. Satisfaction guaranteed. Brownie's, 5835 Fairmount Avenue, San Diego 20, California.

**MILLER'S** Modern manufacturing formulas make fastest-selling products that get the business and pay! Fifty years supplying the best. Valuable Literature free! Miller, Chemist, 1517-C, Tampa, Florida.

## 40 PLASTICS

**LEARN** Plastics Fabrication For spare time income. Low cost home training now available. Write for free booklet. Interstate Training Service, Dept. D-2, Portland 13, Oregon.

**PLEXIGLAS—Cut** to size—Clear—Any thickness—Colors—Rods—Tubing. Mc. Clarin Plastics, P. O. Box 168B, Hanover, Pa.

**LAMINATING** Supplies. Price List Free. Solomonson, 46 Cornhill, Boston 8, Mass.

**PLEXIGLAS, Fiberglass, Polyester, Acetate.** Instructive Wholesale-retail catalog—free! Gem-O'-Lite, 5529 Cahuenga, North Hollywood, California.

**BOOK** of experiments with plastics. Make your own tools and toys. Send \$1.00 to Plastic Projects, Box 5151, Detroit 35, Michigan.

**PLASTIC** Repair Kit welds breaks and cracks. Restores original finish. Complete kit \$3.00. Free information. Rayther, Box 264, Station B, Toledo, Ohio.



# POPULAR SCIENCE OPPORTUNITIES

**PLEXIGLAS.** Lucite. Square foot cost, 1/16"—\$1.18; 1/8"—\$1.52; 3/16"—\$1.86; 1/4"—\$2.21; 3/8"—\$3.23; 1/2"—\$4.36. Colors add 10%. Send 15% for postage. Aristocrat Plastics, 23-25 Sussex Ave., Newark, New Jersey.

**NEW Liquid Casting Plastic.** clear, colors. Embed real flowers, insects, photos, coins. Saw, drill, carve. Send 25c for handbook "How to Cast with Liquid Plastic" and proved success plan showing how to make money at home. Castolite, Dept. K-102, Woodstock, Illinois.

**VACUUM Forming.** Plastics Newest Field, Details 35c. Plastiform, Box 43, Elmhurst, Illinois.

## 41 CHEMISTRY & PHYSICS

**EXPERIMENTERS:** Terrific Bargains catalog—20c. Hagenow Laboratories, 2414 Clarks, Manitowoc, Wisconsin.

**ILLUSTRATED Catalog:** Chemistry, mineralogy, biology 20c. Tracey Laboratories, Evanston, Illinois.

**AMAZING New Book of Science.** Experiments, Formulas and Catalogue of Laboratory Supplies. Only 25c. National Scientific Co., Dept. PS-9, 500 W. Road, Lombard, Illinois.

**FREE! 5 Unusual Dazzling Experiments.** Send 3c Stamp. Chemtron, Box 16, Ft. George Sta., New York 40, New York.

**CHEMICALS** and apparatus for industrial, analytical and private laboratories. Catalog 25c. Dept. M-26, Biological Supply Co., 1176 Mt. Hope Ave., Rochester 20, N. Y.

**CHEMICALS, Supplies Catalog 25c.** (refundable). Laboratory Sales, Box 161-F, Brighton, Mass.

**EXPERIMENTER'S Newspaper**—includes chemical experiments, news, projects—15c. Experimenter, 713 Second Street, Canonsburg, Pennsylvania.

**BOOKLETS:** 60 pages each! "Beginners Chemistry," "Chemistry," "Einstein's Relativity," "Physics," "Atomic Theory," "Electron Theory," "Scientific Oddities," "Light," "Sound," "Heat," "Electricity," "Radio," "Astronomy," "Useful Tables," "Geometry," "Mathematical Oddities," "Scientific Terms." (Order by Titles) 10c each. Frank's, 3121 South Racine, Chicago 8.

## 42 HELP WANTED

**FOREIGN, Alaskan, USA, Job Opportunities!!** To \$1500 Monthly! Million Americans, Employed Overseas. Copyrighted Reports. Who to contact for highest paying jobs. Laborers—Trades—Truck Drivers—Office—Engineers. Many Others. 52 Countries—St. Lawrence Project, Spain, Latin America, Northern Projects, Europe. Year Registration—Advisory Service. Application forms. Unconditional Money-back Guarantee! \$2.00 (Airmail \$2.25) (COD's Accepted). International Reporter, St. Louis 1-SK, Missouri.

**FLORIDA jobs galore!** Contacts, \$2.00. Hayward Parker, 1737 Cortez Rd., E., Jacksonville, Florida.

**FOREIGN and American Employment!!!** High Pay. Overtime Work. Transportation expenses. World-wide Opportunities for skilled—unskilled. Most all Trades, Carpenters—Electricians—Truck Drivers—Mechanics. Many Others. Latest Guaranteed Reports, application form. How—When—Where to apply. Also Oil—Aviation—Steamship contacts. Guaranteed Satisfaction or Money Refunded. One-year registration—advisory service. Reports mailed same day order received!! Send \$2.00 or C.O.D. plus postage. Act today and receive Bonus Report on St. Lawrence Seaway Project. Midwestern Services, Box 124, St. Louis 5, Missouri.

**TULSA, Oklahoma, Oil and Aircraft.** Complete classified section Sunday edition \$1.00. Harold's, 7147 E. Young St., Tulsa, Oklahoma.

**FOREIGN Jobs—Latin America, Alaska, Canada, up to \$1500 monthly.** Up-to-date 1956 Foreign Service Directory gives complete information; hot list of firms hiring for Military and Civilian Construction, Aircraft, Oil, Exporters—Importers, Mining, \$1.00. How-When-Where to apply. 9th successful year! Global Reports, Box 883-P, Hollywood 23, Calif.

**CALIFORNIA Classifieds Airmailed.** Six Industrial Areas \$5.00—any city \$1.50. Newservice, 2700 Dana St., Berkeley, California.

**COPYRIGHTED Reports** on best paying jobs with travel, adventure, promotions. Construction, aviation, shipping, laborers, clerical, trades, supervisory, factory, unusual opportunities. Many types of work. Skilled and unskilled. Foreign and state-side openings for men and women. Only \$2.00 (\$2.25 airmail), including registration-advisory service. Satisfaction guaranteed. Included absolutely free: Special reports on Alaska, Spanish airbase construction, South American opportunities and husband-wife foreign jobs. Research Services, Suite 207-PSE, Brown Building, St. Louis 5, Missouri.

**IF you have a product or service** that can be operated on a mail order basis, write me today. I will send you a Free Kit on "How To Make Money Out Of Classified Advertising." Next issue will be November. Closing date September 25. Hurry—Do it Today! O. K. Kelly, Classified Adv., Mgr., Dept. A9, 353 Fourth Avenue, New York 10, N. Y.

## 43 AGENTS WANTED

**HOW Much Extra Income Could You Use Right Now?** \$25 . . . \$50 . . . \$100 . . . or more? Hundreds of people everywhere turn spare time into hard cash, showing dazzling new assortments of Elmira Greeting Cards. Beautifully designed for every taste and occasion! Ideal as gifts or for personal use! Start now to make money this easy, pleasant, practical way! Send for your Free samples, catalog and brilliant assortments on approval, including personalized stationery, imprinted napkins, lovely wrappings and smart gift items. Elmira Greeting Card Co., Elmira, CN-158, New York.

**EVERY man a prospect.** Request free sales kit. Show line of belt buckles, individualized with prospect's personal name and emblems also transportation, police, fireman badges. Choice 3,000 emblems. Hook-Fast, Box 1425-PS, Providence, R. I.

**YOUR own business—Suits \$1.50; Overcoats 65c; Mackinaws 35c; Shoes 12 1/2c; Ladies' Coats 30c; Dresses 15c.** Enormous profits. Catalog Free. Nathan Portnoy Associates, 605-J West 12th Place, Chicago 7.

**AGENTS—300% profit** selling genuine gold window letters; stores and offices. Free samples. Metallic Sign Letter Co., 431-E North Clark, Chicago.

**GOLD or Silver letters, numbers.** Windows, Doors, Trucks 1" to 6". 500% Profits—Free Samples. Atlas-U, 544 West 79th, Chicago 20.

**NEW Jobs open in selling!** Send name, address for five free issues of Opportunity Magazine's money-making guide, listing hundreds of companies who'll pay you well, full or part-time. No experience needed. Opportunity, 850 N. Dearborn, Dept. 18, Chicago, Illinois.

**BUY Wholesale** thousands nationally advertised products at big discounts. Free "Wholesale Plan." American Buyers', Hertel Station, Buffalo 16-L, N. Y.

**GOLDMINE Of 600 money-makers.** Copy Free. Specialty Salesman Magazine, Desk 6-B, 307 N. Michigan, Chicago 1.

**FREE! Beautiful Feather Pictures 200% Profit!** Apartado 9036, Mexico 1, D.F.

**MEN—Women Agents; Sensational new moneymakers**—Beautifully hand-painted, plastic personalized photo enlargements, compacts, rings, bracelets, lockets, etc. Simply take orders, pocket 40% commission—we deliver and collect. Sales outfit free. Novelco, 3343 North Avenue, Chicago 47.

**SELL Precious Stones.** No investment. Send deposit or credit references for approval selection. Beissinger, 417 Clark Bldg., Pittsburgh, Pennsylvania.

**\$1,000.00 A month** for making dramatic 3-second demonstration of amazing lightweight Presto Fire Extinguisher. New chemical used by Airforce snuffs out fires instantly. Only \$4.95. Terrific commissions. Millions want it. Free Kit. Merlite, 114 E. 32nd, Dept. P-53L, New York 16.

**BIGGEST Christmas Card Profits.** Sensational "Super-36" Assortment pays \$1.25 profit on every box—\$50.00 on 40 boxes easy. 200 fast sellers double earnings! Tail cards, Novelties, Stationery, Bargain Specials. Assortments on approval. Color catalog. Personalized Album Free. Midwest, 1113 Washington, Dept. 495-S, St. Louis 1, Missouri.

**SELL Newest Tall Christmas Cards—** make 75c on sensational \$1.25 Assortment. 250 hottest Gifts, Cards, Stationery, 50 Exclusive Personalized designs. Super-Roll Gift Wraps, 30 for \$1 Box. Samples on approval, surprise offers, prompt action Gift. Cardinal, 1400 State, Dept. K-80, Cincinnati 14.

**AT Last! Something New and Sensational** in latest Tall Christmas Cards. Make Extra Money Fast! Show Satins, Velours, Metallics. Gets Easy Orders. Pays up to 100% Profit. 30 Free Samples. With Name 50 for \$1.50. Big Line. Amazing Convertible Pen-Pencil, Napkins, Gifts, Stationery. Several \$1.00 Boxes on Approval. Pure Greetings, 2801 Locust, Dept. 641-L, St. Louis 12, Missouri.

**AMAZING new "Touch-Glow" Christmas Cards** sell swiftly from Free Samples. \$62.50 profit on 50 boxes easy! Many Tall Cards, Stationery, Novelties, Album of Imprints. Profits to 100% plus Gift Bonuses. Samples on approval. Creative, 4401 Cermak, Dept. 510-D, Chicago 23.

**GOOD Man Can make \$3,000.00 next 90 days.** Every house in town wants amazing NiLite "cats-eye" lawn sign. Automatic selling plan pays profits everyday. Write today for Free details. NiLite, 173 W. Madison, Dept. 302, Chicago.

**IF you want to earn money fast, I'll** send you Free Sample Stocking Of newest Stretch DuPont Nylons to sell at only \$1 a pair. American Mills, Dept. 497, Indianapolis 7, Indiana.

**ADD \$20.00 to \$200.00 Per Week To** Your Income with Miracle Bowls! Sell door to door and store to store. "Just Add Water And Watch Them Grow." Write for free literature Now. Miracle Bowls, Dept. 4, Littleton, Colorado.

**ANYONE can sell famous Hoover Uni-** forms for beauty shops, waitresses, nurses, doctors, others. All popular miracle fabrics—nylon, dacron, orlon. Exclusive styles, top quality. Big cash income now, real future. Equipment free. Hoover, Dept. J-101, New York 11, N. Y.

**TREMENDOUS profits! Every man,** woman and child a customer. Suits \$1.50. Pants 35c. Dresses 20c. Shoes 20c. Operate from store, home, car. Free catalog. Superior, 1250-B Jefferson, Chicago 7.

**WHOLESALE Catalog! 30-80% Dis-** counts! Appliances, Musical Instruments, Typewriters, Tools, Watches, Jewelry, Cameras, Housewares, etc. Consolidated Distributors, 1300-16 Main, Clifton, New Jersey.

**CHRISTMAS Cards—144 exceptionally** distinctive greetings, all with customer's name. To attract big-volume sales, line includes many cards specially designed for business firms and professional people. All popular subjects, wide price range. Unequalled in lavish treatment, unusual illustration, high-quality stock. Up to \$5 to \$100 commission on each sale. Full or part time. Experience unnecessary. Old, established firm. For complete Sample Kit, write Process Corp., 1950 S. Troy, Dept. MR-9, Chicago 23, Illinois.

**BIG Money-making opportunity.** Exclusive line work uniforms. Jackets, pants, shirts, coveralls. Advertising embroidered. Every business prospect. Outfit Free. Master Co., 427 Water, Ligonier, Indiana.



# POPULAR SCIENCE OPPORTUNITIES

**FANTASTIC** New money-making plan. Sell nothing, yet make to \$50 daily! Offer women, personally or by mail (all materials supplied) beautiful, solid stainless steel tableware, complete with chest, free for selling just two sets to their friends! Exclusive patterns not sold in stores. Guaranteed 50 years. Truly successor to Sterling. Cannot rust, stain or tarnish. Banished "silver" polishing forever. Nothing to peel or wear off. Amazing low retail prices, yet you average over \$30 profit on each transaction! Rush postcard for details, catalogue, other money-making plans etc. absolutely free. Topval Corp., Lindenhurst 20, New York.

**MAN Wanted**—Are you dissatisfied with your work? Would you like a business of your own? If so, write Rawleigh's, Dept. I-GG-PSC, Freeport, Illinois.

**FREE** box of 21 Nationally Famous Christmas Cards included with other fast selling assortments sent on approval. Earn \$50.00 by selling only 50 boxes of our 900 Series Christmas Card Assortment. Can be done in a few hours of your spare time. Sunshine Art Studios, Inc., Dept. PS9, Springfield 1, Mass., Pasadena 1, Calif.

**MAKE Up To 100% Profit In Your Spare Time!** No experience needed! Sell from Big Free Catalog. Tremendous selection of unique gifts, gadgets, greeting cards, including world-famous brands like Westinghouse! Don't waste valuable time! Cash in on extra profits. Send for Free Colorful Catalog And Free Money Making Plan Today! Hurry! Greetings Unlimited, 399 Park Square, St. Paul, Minnesota.

**SEEKING New Products?** Get my outfit 47 money-making specialties. Latest conveniences for home, car. Send no money. Just your name. Kristee Company, Dept. 53, Akron 8, Ohio.

**EARN Extra Profits In Spare Time!** Here's your big chance to sell one of the fastest moving lines of gifts, greeting cards, gadgets, toys, jewelry, and gift wraps, on the market! Make up to 100% cash profit! Send for big Free Colorful Catalog Now! Hurry! Don't miss this sensational opportunity! North Star, Dept. 739, St. Paul, Minnesota.

**SPARE** time greeting card business! Show friends new type Tall, Parchment, Photochrome Christmas, All Occasion assortments. Make \$50, \$75, \$100 extra money. Bonus. Write for Feature boxes on approval, 74 free samples Personal Christmas Cards, Stationery, free Catalog. Selling Guide. New England Art Publishers, North Abington 933-F, Mass.

**MAKE 3 Days Pay In Day!** Amazing Name-In-Silver Christmas Cards pay \$65 on 65 boxes! No experience needed. Sample book Free, assortments on approval! "Southern Belle" Doll Free for promptness! Southern, 478 N. Hollywood, Dept. M-59, Memphis 12, Tennessee.

**GET New Shirt Outfit Free:** make \$90.00 weekly on 5 average orders a day. Famous quality Made-To-Measure dress and sport shirts at \$3.95 up sell fast to all men. No experience needed. Full or part time. Write: Packard Shirt Co., Dept. 308, Terre Haute, Indiana.

**FREE!** Illustrated Wholesale Catalog. Save and earn money on over 1000 most popular, brand-name housewares and appliances. Tremendous Discounts. Write: Shop Smart Ltd., Dept. 29, Box 687, Newark 1, New Jersey.

**BUSINESS Kit Free!** Postcard puts you in business! Complete line, 190 shoe styles, also jackets. New discoveries pay Big Commissions. No investment. Send for Free Kit. Mason Shoe, C32, Chippewa Falls, Wisconsin.

**CALIFORNIA** sweet smelling beads, sensational sellers. Particulars free. Mission, 2328-P West Pico, Los Angeles 6, Calif.

**USED** and new watches. \$2 up. Free List. Southern Watches, Gray, Georgia.

**DRYCLEANS** Clothing for only 10c per garment. Lightning seller. Saves drycleaning bills. Samples sent on trial. Kristee Company, Dept. 54, Akron 8, Ohio.

**NEW** invention, \$4.95 fire alarm, paying up to \$1,100 a month. No wiring. Unlimited market. Dramatic demonstration. Free kit. Merlite (Alarm Div.), 114 East 32nd Street, Dept. F-53L, New York 16, New York.

**FAST** Selling Money Makers! Metallic Ironing Board Cover: Purse-Shopping Bag; many others including \$1.00 retailers. Quality Products, (Dept. B), Box 748, Passaic, New Jersey.

**SELL** profitable personalized rugs. For information write Bobby's, Department 19, Manitou Springs, Colorado.

**MASTICOTE** "Alcoa Aluminum" Pigmented Liquid Roofing brings big orders. Our top salesmen average over \$10,000 a year — commission. Madison Paint Co., Mfrs., Dept. PS569, Cleveland 2, Ohio.

**NEED** Money? \$50 yours. Sell only 100 boxes new Christmas cards. Other amazing offers. Free samples imprinted cards. Feature box assortments on approval. Free catalog, 100 profitable items. Work with a national leader. Write today. Pen-N-Brush, Dept. PS-9, 139 Duane Street, New York City 13.

**YOUR** Next Job. Here's an opening for a man in your area to take over thousands of contacts for factories, offices, stores, etc. Earnings in advance; bonus benefits. We figure this man is worth up to \$16,000.00 in a year. Write or wire B. O. Slocum, Vice President, Littleton, Colorado.

**FOAM-O-Cel** sponge, new miracle household item; cleans rugs, carpets, upholstery like new! Tremendous market, fast \$1.00 seller, big profits. Free details. M&M, Dept. 4-PS, 842 Third Avenue, New York 22.

**EARN** Extra Money. Sell Ladies Nylons. Star Line Distributors, 2945 So. 46, Milwaukee 19.

**EASY** handwork makes fast-selling articles. Sample free. Sunmade Company, Brockton 64, Massachusetts.

**BUY** wholesale women's—men's hosiery, neckties. Blasl, Dept. P96, 386 Fourth Avenue, Newark, New Jersey.

**FREE** book "505 Odd, Successful Businesses." Work home! Pacific-38C, Ocean-side, Calif.

**BIG** Profits! Sell amazing Seal-Tite puncture-proofing Compound to car owners, cab and truck fleets, service stations, etc. Terrific appeal, fast \$1.98 seller! Free details. M&M, Dept. 2-PS, 842 Third Avenue, New York 22.

**RUN** Spare-Time Greeting Card and Gift Shop at home. Show friends samples of our new 1956 Christmas and All-Occasion Greeting Cards and Gifts. Take their orders and earn to 100% profit. No experience necessary. Costs nothing to try. Write today for samples on approval. Regal Greetings, Dept. 90, Ferndale, Michigan.

**SCHOOL** Seniors. Be Popular With Classmates. Have Spending Money Galore. Details Free. Craftcards, Box 235-M, Pittsburgh 19, Penna.

**MAKE** \$10.00 An Hour or more, spare time, with tested Free Trial Sales Plan for fastest-selling new home appliance. Defrosts refrigerators automatically. Sell 8 homes in 10. Free details, guaranteed profit offer. Write Defrostomatic, 173 W. Madison, Dept. D-103, Chicago.

**\$1.00 PROFIT** selling \$2.95 photo enlargement offer. Allen Studio, Reigler Bldg., Little Rock, Arkansas.

**\$3.00 HOURLY** Possible: Catalogue, Literature, Samples \$2.10. (Refundable.) R. Plumb, Herkimer, New York.

**60% PROFIT** Cosmetics. \$25 Day Up. Hire others. Samples, details. Studio Girl Hollywood, Glendale, California. Dept. 1169H.

**SELL** Negro Christmas Cards, exclusive, new styles, full discounts, big profits! Send \$1 for sample kit, applied against first order or refund guaranteed if not satisfied. Color-Tone Originals, 110 Pearl Street, Mount Vernon, New York.

**BALL** Point Pen uses ordinary ink. Guaranteed. Details free. Sample \$1.85 ppd. Orchard, Box 151, Skokie, Illinois.

**IF** you have a product or service that can be operated on a mail order basis, write me today. I will send you a Free Kit on "How To Make Money Out Of Classified Advertising." Next issue will be November. Closing date September 25. Hurry—Do it Today! O. K. Kelly, Classified Adv., Mgr., Dept. A9, 353 Fourth Avenue, New York 10, N. Y.

## 44 HIGH-GRADE SALESMEN

**AD** Matches! Sell amazing designs—10, 20, 30, 40, and 240-light book matches. Bigger spot cash commissions; every business a prospect. Low prices for high quality. Repeats. Start without experience; men, women; full, part time. Buy nothing! Sales kit furnished. Match Corp., Dept. PS-81, Chicago 32, Illinois.

**\$1,000.00** A month for making dramatic 3-second demonstration of amazing lightweight Presto Fire Extinguisher. New chemical used by Airforce snuffs out fires instantly. Only \$4.95. Terrific commissions. Millions want it. Free Kit. Merlite, 114 E. 32nd, Dept. P-53L, New York 16.

**ADVERTISING** book matches—Cash in on big demand—sell Union label matches. Cuts for all businesses and political parties—Free powerhouse selling kit—low prices—protection guaranteed on repeat orders—Cash commissions. Superior Match Co., Dept. P-956, 7530 Greenwood, Chicago.

**USED** and new watches. \$2 up. Free List. Southern Watches, Gray, Georgia.

**NEW** invention, \$4.95 fire alarm, paying up to \$1,100 a month. No wiring. Unlimited market. Dramatic demonstration. Free kit. Merlite (Alarm Div.), 114 East 32nd Street, Dept. F-53L, New York 16, New York.

## 45 EDUCATIONAL & INSTRUCTION

**USED** Correspondence Courses and Books sold and rented. Money back guarantee. Catalog free. (Courses Bought.) Lee Mountain, Pisgah, Alabama.

**BE** a Real Estate Broker. Study at Home. Write for Free book today. GI approved. Weaver School of Real Estate, 2018R Grand, Kansas City, Mo.

**BOOKKEEPERS!** Increase your earnings! Operate your own simplified "Dollar-A-Week" Bookkeeping and Tax Service. Full or spare time. Details Free. No obligation. Ellis, Box 203, Cedar Grove, North Carolina.

**FINISH** High School at home, spare time. No classes. Diploma awarded. Write for Free catalog. Wayne School, Catalog HBA-59, 2527 Sheffield, Chicago 14.

**COMPLETE** Your High School at home in spare time with 59-year-old school. Texts furnished. No classes. Diploma. Information booklet free. American School, Dept. X646, Drexel at 58th, Chicago 37, Illinois.

**STUDY** For Doctor's degree of Psychology, Metaphysics and Divinity. Correspondence courses only. College of Divine Metaphysics, Dept. P-S, 2811 North Illinois, Indianapolis 8, Ind.

**EARN** While You Learn Auto And Diesel Mechanics. Master this top paying trade. Many graduates earn \$100 a week and up. Approved for Korean veterans. For free information write Dept. No. 262, Nashville Auto-Diesel College, Nashville 3, Tenn.

**HIGH** School diploma at home. Licensed teachers. Approved materials. Southern States Academy, Box 144 PX, Station E, Atlanta, Georgia.

**WANT** A Diesel Job? New Opportunities to increase income. Higher Pay. More Money. We can help you Qualify. Tools Shop method home training. Write today! Diesel, Tractor, Heavy Equipment Division. Interstate Training Service Dept. B-2, Portland 13, Oregon.



# POPULAR SCIENCE OPPORTUNITIES

**HAND Engraving.** Learn at home. Write Box 116, Mishawaka, Ind.

**ENGINEERING** Degrees earned by home study. American College of Engineering (University of the West), Box 27724 (A), Hollywood 27, Calif.

**GROW Mushrooms.** Cellar, shed. Spare, full time, year round. We pay \$3.50 lb. We Paid John Betts \$7,977.76, he started as amateur. Free Book. Mushrooms, Dept. 180, 2954 Admiral Way, Seattle, Washington.

**TRANSFORM** yourself via subconscious dynamics. Free Amazing Brochure. Box 847 (A-9), Ocean Park, Calif.

**WELDING** training pays at Hobart Welding School, Box P-961, Troy, Ohio. VA contract. Best equipment. Catalog free.

**DRAFTING-Design.** Architectural. Mechanical. Electrical. Structural. Aircraft. Mathematics. Physics. Estimating. Surveying. Veteran approved. Mondell Institute, 230 West 41st, New York.

**BLUEPRINT** Reading—train at home. Learn to read blueprints with confidence in 10 easy lessons. Write today. Belton School, 1059-X North Lawndale, Chicago 51.

**USED** Correspondence courses and educational books bought, sold, rented. Free Catalog. Educational Exchange, Menlo, Georgia.

**STARTLING** Discovery! Amazing new, uncrowded profession. Know yourself, others; how they think, act. Big money, recognition, returns for those who qualify. Learn at home, spare time. Send only \$1.00 for Secrets (regular price \$1.50). \$3.00 credit coupon given. Give age, occupation, your handwriting for surprise worth \$1.00. Estes, 2307-PS National Station, Springfield, Missouri.

**DRAFTING, Design, Blueprint Reading.** Good paying. Easy to learn at home. Minimum age 17. Write Utilities Engineering Institute, Dept. TM-1, 2525 Sheffield, Chicago 14.

**PRACTICAL** Trigonometry Made Easy \$1.00. Simons, 32 Plain, Providence, Rhode Island.

**BOOKS.** Free 1956 catalog, 100 pages. Text, vocational, educational, instructional subjects. Millions of volumes, new and used. Bargain prices. Books bought, Est. 1902. Long's College Book Co., Dept. PS, Columbus 1, Ohio.

**MENTAL** Telepathy: Increase influence, personal magnetism, prosperity, advancement. Simple complete professional 25,000-word textbook; \$5.00, postpaid; refunded if dissatisfied. Circular free. John Crehore, Walpole, New Hampshire.

**HELP** yourself to abundant living. Our courses have aided students to richer, fuller lives. Learn secret of contentment, happiness. Earn degrees Ps.D., Ms.D. Write for free book. College of Universal Truth (Correspondence School), 23-K E. Jackson, Chicago.

**WANT** Strong, masculine voice? Send for Free booklet. Perfect Voice Institute, 210 South Clinton, Studio 2JU-1, Chicago 6.

**QUALIFY** for college equivalence degrees by examination. No courses. Increase opportunities for promotion, better pay. Cramwell Institute, Adams 7, Mass.

**LEARN** While Asleep! Guaranteed. Details free. Research Association, Box 610, Omaha.

**SCIENCE** of Memory simplified. First lesson of Memorology Free. Memorology Studio, 2016 Sunnyside Ave., Chicago 25, Illinois.

**LEARN** to fit Hearing Aids, or Scientific Massage. Diplomas. Write Box 3611, Oklahoma City 6.

**LEARN** Mineralogy at home. Diploma course. Fortunes now being made in Uranium and other minerals. Free catalog. Mineral Science Institute, Desk 3, 159 East Ontario, Chicago 11.

**SWEDISH Massage—We Train You At Home.** Earn Big Profits from your own Private Practice or Work with Hospitals and Doctors. Free Catalog. National Institute, Desk 3, 159 East Ontario, Chicago 11.

**U.S. Civil Service Tests!** Training until appointed. Men — Women, 18-55. Start high as \$87.00 week. Experience often unnecessary. Get Free 36-page book showing jobs, salaries, requirements, sample tests, benefits. Write: Franklin Institute, Dept. Y-22, Rochester, New York.

**LEARN** tricks of tool, die and machinist trade, pamphlet \$2.00. Edward Glen, 140 Midland Ave., Saddle Brook, New Jersey.

**EDUCATIONAL** books, correspondence courses, bought, sold, rented. Free Catalog. Willard Bayles, 211 Essex, Hackensack, New Jersey.

## 46 CONTESTS

**WIN** contest money. General Contest Bulletin gives hundreds of tips. Lists current contests and rules. Sample 25c. General Contests, 1609-A East 5th, Duluth, Minnesota.

**"FOOL** the Little Fooler". What you must know and do to win. \$2.00 Postpaid. Parker, 202 West Howard, Kenney, Illinois.

**PRIZE** Contests provide Fabulous and Confidential Home Income Opportunity! Here's How and Where to Win Your Share! Send stamp! National Contest Bulletin, Box 2685-PS, Miami 16, Florida.

## 47 DETECTIVES

**DETECTIVE** Training. Phillips Secret Service System, 1917-C North Kenneth, Chicago 39, Ill.

**DETECTIVES—Work** home—Travel. Experience unnecessary. Detective Particulars free. Write Wagoner, P-125 West 86th, New York 24.

**LEARN** Civil and criminal investigation at home. Earn steady good pay. Institute Applied Science, 1920 Sunnyside, Dept. 336, Chicago 40, Ill.

## 48 LANGUAGE OUTFITS

**IT'S** Easy learning a language by Linguaphone's World Standard Conversational Method. At home, quickly, easily learn to speak French, Spanish, German, Japanese, Modern Greek—any of 34 languages. It's like living in another country. Save time, work, money. Send for Free Book. Linguaphone Institute, 54-096 Rock Plaza, New York 20.

## 51 SPECIAL SERVICES

**NEED** to contact manufacturers? Any item! Lists prepared—\$1.00 per product classification. G. Hanlin, P. O. Box 338, Aiken, South Carolina.

## 52 AUTHORS SERVICE

**WANT** Your Book Published? Learn how we publish, advertise, promote, distribute. Many successes. Free booklet PS. Vantage, 120 West 31, New York.

**ALL** The World Loves An Author. If you write, we appraise/sell. Write/phone: Daniel S. Mead, Literary Agent, 419 Fourth Ave., New York 16. OR 9-1150.

**WRITERS:** Book Manuscripts invited for publication on our cooperative plan. Greenwich Book Publishers. (Attn. Mr. Ibsen), 489 Fifth Avenue, New York 17, New York.

## 53 ADVERTISING, AGENCIES, ETC., FOR ADVERTISERS

**FREE** expert assistance for mailorder advertisers. Ratebook leading newspapers, magazines, 10c. Chicago Advertising Agency, Chicago 4.

**NEED** "Impact" sales letters, mature advertising counsel? New service provides both. Free details. Adman's Forum, 5451-B9 Foster, Skokie, Illinois.

**LEARN** Advertising—America's Highest Paid Profession. Botts Advertising, 1211 Laura PS, Wichita, Kansas.

**LEARN** advertising. Van Buskirk System, 825 East Harrison Street, Danville, Illinois, Dept. PS956.

**ADVERTISE:** 24 words, 100 Canadian Newspapers, \$5.50. Lists Free. Advertising Bureau, 10511-P Springfield, Chicago 43.

**25 WORD** Ad 21,000 bulletins. Printed. Mailed, \$2.50. Proof sent. Direct Publishers, Conshohocken, Pa.

## 54 CARTOONING, SIGN PAINTING, CHALK TALKS

**"HOW** To Make Money With Simple Cartoons"—A book everyone who likes to draw should have. It is free; no obligation. Simply address Cartoonists' Exchange, Dept. 199, Pleasant Hill, Ohio.

**MAKE** money selling signs for every purpose—we furnish everything, you makem. Jim Ramsey Signs, Lexington, Kentucky.

**CARTOONIST:** Amateur, Professional. Prepare for animation with Max Fleischer's plan. Write Vera Coleman, 60 East 42nd Street, New York, N. Y.

**LEARN** Today—Earn Tomorrow. Straley Sign System, 410 S. Western, Springfield, Ohio.

**LEARN** Sign Painting at Home. Free Talent Test. Ben Kerns, Box 812-S, Greenville, South Carolina.

**PAINT** Signs—Master die cut, outline letter patterns. Complete assortment, 1½" to 12" high, prepaid \$2.00. Eyerly, P-583, Newton, Iowa.

**LETTER** Patterns give signs professional touch. Catalogue, samples dime. Patterns, 2240PS, Chicago 12.

## 56 RUBBER STAMPS & OFFICE SUPPLIES

**INTRODUCTORY** offer cushioned Three Line Stamp one dollar. Tesco, 1803 Piedmont, Jackson 2, Mississippi.

**THREE** line name and Address. Metal or plastic pocket Case \$1.00. Mated Mailers, Post Office Box 494, Buffalo 5, New York.

**4 LINES** \$1.50 . . . Script . . . \$2.50. Roughsedge's, 2 Lionel, Clark 2, New Jersey.

**BETTER** Quality Rubber Stamps! 3 Lines \$1.00. Promptness. Catalogue. Johnson, 443 McDonough, Brooklyn 33, New York.

**QUALITY** Rubber Stamps; Stamp Pads, Ink Catalog. Solomon Chechik, 157 Clymer St., Brooklyn 11, New York.

## 57 PRINTING MULTIGRAPHING, ETC.

**SALESBOOKS—Orderbooks—Billbooks** Printed Business Forms. Eddirose, Bronx 72, New York. Free Catalog.

**LETTERHEADS,** statements, cards, etc. Send 10c for samples. Harold Kroll, Seymour, Wisconsin.

**BUSINESS** Printing. Samples, Catalog Free. Howprint, 723-W Eunice, Webster Groves 19, Missouri.

**BUSINESS** Stationery. Circular Printing. Reasonable Prices. Vosacek Printing, 4444B Ute, San Diego 17.

**OFFSET** printing \$6.50—1000, 8½X11, 16 lb. National Letters, 251 W. 42nd St., New York 36.

**100 LETTERHEADS** 5½x8½, 100 Envelopes, all printed \$1.75. 1000 Gummed Address Labels printed three lines, padded, boxed \$1.00. No COD's. Sheldon, 115 Ninth, Philipsburg, Pennsylvania.

**100 BUSINESS** Cards \$1.00. Print Shop, 1418 Broadway, Rockford, Illinois.

**FREE** Catalog. Business, Personal Printing. D M Press, Sebastopol, California.

**COMPLETE** mail advertising service: Mimeographing, Printing, Offset, Copy, Art. Catalog Free! Edwards, 164 77th, Brooklyn, New York.

**GUMMED** Labels in Rolls. Name and address printed, 3 lines, 1½x1¾. 500 \$1.00. Business Cards, \$3.95. Guaranteed. One Day Service. Samples. Alexander, Box 474, Pomona (2), California.



# POPULAR SCIENCE OPPORTUNITIES

**ILLUSTRATED Catalog:** Printing, offsetting, colored mimeographing. Letterhead folio included. Kente, 1863 Edgewood, Norfolk 3, Virginia.

**BUSINESS Cards** \$3.50 per 1000. Letterheads and Envelopes \$1.00 per 100. Yates Printing Company, 120 Liberty Street, New York 6, New York.

**OFFSET Printing.** Varityper Composition. Free Estimates. Samples. Ferguson Printing, 214 South Grant, Indianapolis 1, Indiana.

**BUSINESS printing,** offset, mimeographing. Samples. Multicopy. 285 Cypress, Columbus 23, Ohio.

**1,000 ENVELOPES** and 1,000 Noteheads or statements, \$9.95 postpaid. Request price list. John Peper, Box 822, Chattanooga 1, Tennessee.

**500 3/4x2 1/4 FOUR line gummed stickers** 50c. Red Border \$1.00. Moritz Printer, Saginaw, Michigan.

**FAST Service.** 100 8 1/2x11 Letterheads \$2.00 Postpaid. Bass Press, Knox, Indiana.

**CIRCULARS.** Booklets. Imitation Letters. Anything printed promptly! Estimates Free! Lonelm, Paulding, Ohio.

## 58 PRINTING OUTFITS, SUPPLIES

**RUBBER Stamp** making presses, hydraulic operated, electrically heated. Also supplies. Custom, Box 211-N, Springfield, Missouri.

**PRINTING Presses,** Type Supplies, Lists 3c. Turnbaugh Service, Mechanicsburg, Pa.

**DO your own printing.** Save money. Simple rules. We supply everything. Print for others; good profit. Raised printing like engraving too. Have home shop. Details free. Kelsey Presses, V-8, Meriden, Conn.

**MAKE your own self-molding rubber stamps** and printing cuts. Flexirubber, Argyle 2, Wisconsin.

## 59 PATENT ATTORNEYS

**INVENTION Record** form free and "Patent Information Every Inventor Should Have." Carl Miller, Registered Patent Attorney, Woolworth Building, New York.

**INVENTORS:** Without obligation, write for information explaining the steps you should take to secure a Patent. John Randolph, Registered Patent Attorney, 207 Columbian Bldg., Washington 1, D. C.

**C. A. Snow & Co.—S-427.** Snow Building, Washington 1, D. C. Registered Patent Attorneys. Write for information.

**INVENTORS:** Learn how you can protect your invention. A specially prepared booklet "Patent Guide for the Inventor" containing detailed information concerning patent protection and procedure together with "Record of Invention" form will be promptly forwarded to you upon request—without obligation. We are registered to practice before the United States Patent Office and are prepared to serve you in the handling of your patent matters. Clarence A. O'Brien & Harvey Jacobson, Registered Patent Attorneys, 62B-G District National Building, Washington, D. C.

**INVENTORS—Send today** for instructive booklet "Patent Protection for Inventors" giving detailed patent information and outlining preliminary steps to take toward patent protection.—also "Evidence of Invention" form. Victor J. Evans & Co., 241-K Merlin Building, Washington 6, D. C.

**PATENTS—Irving L. McCathran,** 316 McLachlen Bldg., Washington 1, D. C. Registered Patent Attorney.

**INVENTORS—If you believe you have an invention** you should find out how to protect it. The firm of McMorow, Berman & Davidson with offices in Washington, D. C., is qualified to take the necessary steps for you. Send for copy of our Patent Booklet "How to Protect Your Invention." We will also send you an "Invention Record" form. No obligation. They are yours for the asking. McMorow, Berman & Davidson, Registered Patent Attorneys, 1435 Victor Building, Washington 1, D. C.

**INVENTORS:** When you are satisfied that you have invented something of value write me, without obligation, for information as to what steps you should take to secure a Patent. Write Patrick D. Beavers, Registered Patent Atty., 938 Columbian Bldg., Washington 1, D. C.

**"INVENTOR'S Guide" and "Record of Invention"** free on request. Frank B. Ledermann, 154 Nassau Street, New York City.

## 60 FOR INVENTORS

**INVENTORS,** if you have an invention for sale, patented or unpatented, write Institute of American Inventors, Dept. 30A, 631-E St., N.W., Washington 4, D. C.

**INVENTION Record** form free and "Patent Information Every Inventor Should Have." Carl Miller, Registered Patent Attorney, Woolworth Building, New York.

**INVENTORS—Send for free patent information book** and inventor's record. Registered Patent Attorney, Associate Examiner, Patent Office 1922-1929; Patent Attorney & Advisor, Navy Department 1930-1947, Gustave Miller, 96PSI Warner Building, Washington 4, D. C.

**INVENTORS:** Learn how you can protect your invention. A specially prepared booklet "Patent Guide for the Inventor" containing detailed information concerning patent protection and procedure together with "Record of Invention" form will be promptly forwarded to you upon request—without obligation. We are registered to practice before the United States Patent Office and are prepared to serve you in the handling of your patent matters. Clarence A. O'Brien & Harvey Jacobson, Registered Patent Attorneys, 62A-G District National Building, Washington, D. C.

**INVENTORS:** Without obligation, write for information explaining the steps you should take to secure a Patent on your invention. John Randolph, Registered Patent Attorney, 206 Columbian Bldg., Washington 1, D. C.

**INVENTORS—This firm is registered to practice before the United States Patent Office** and available to assist you in the preparation and prosecution of your patent application. "Patent Protection for Inventors" booklet containing detailed information and steps to take toward patent protection sent promptly upon request. No obligation. Victor J. Evans & Co., 242-K Merlin Building, Washington 6, D. C.

**INVENTORS—If you believe you have an invention** you should find out how to protect it. The firm of McMorow, Berman & Davidson with offices in Washington, D. C., is qualified to take the necessary steps for you. Send for copy of our Patent Booklet "How to Protect Your Invention." We will also send you an "Invention Record" form. No obligation. They are yours for the asking. McMorow, Berman & Davidson, Registered Patent Attorneys, 1434 Victor Building, Washington 1, D. C.

**COMPREHENSIVE list of buyers,** manufacturers specifically selected for your own invention. Send details of invention use and \$3.00. Winsor, Box 171-B, Albuquerque, New Mexico.

**SEARCHES—Put your patent searches in the hands of a Registered Patent Attorney or Agent** as he qualifies to give a worthwhile patentability report. Record of invention form upon request and information on patent protection. Patrick D. Beavers, Registered Patent Attorney, 939 Columbian Bldg., Washington 1, D. C.

**MANUFACTURERS Names—any line—25—\$5.00.** Russel Tupper, Sandwich, Mass.

**INVENTIONS drawn for Patent Office.** Patent Drafting Service, 21 E. VanBuren, Chicago 5, Illinois.

**FELLOW Inventors:** Promote your ideas by mail-order. Tremendous Profits. Detailed Guaranteed System available \$1.00 to MacDonald Enterprises, P.O. Box 367, Morris Plains, New Jersey.

**"INVENTOR'S Guide" and "Record of Invention"** free on request. Frank B. Ledermann, 154 Nassau Street, New York 38, New York.

**FREE Booklet "People, Patents, and Profits".** National Institute of Design and Invention, Box 127-A, San Mateo, California.

**TWENTY Years Experience.** Patent Sales, Post Office Box 3483, Shreveport, Louisiana.

**FREE Record of Invention form.** Patent search plus sales advice, \$5.00. Inventors Sales and Engineering Bureau, Box 4973, Washington, D. C.

**PATENT Searches \$5.00.** 48-hour air-mail service. Invention Protection forms free. Write Patent Engineering Service, 711 14th Street, N.W., Washington 5, D. C.

**PATENT Searches \$5.00.** 48-hour service. Free Invention Protection forms. Write Raymond L. Smith, Patent Searcher, 620 Sheraton Building, Washington 5, D. C.

**PATENT Searches,** including copies of nearest patents, \$6.00. Reports airmailed within 48 hours. More than 100 registered patent attorneys use my service. For Free invention protection forms, write Miss Ann Hastings, P.O. Box 176, Washington 4, D. C.

## 61 INVENTIONS WANTED

**INVENTIONS wanted.** Patented; unpatented. Tremendous Manufacturers lists. Global Marketing Service, 2420 77th, Oakland 5, Calif.

**INVENTORS:** Hundreds of manufacturers have requested our assistance in locating marketable new products. Complete information free. Institute of American Inventors, Dept. 30C, 631—E Street, N.W., Washington 4, D. C.

**INVENTORS—Give us the opportunity to explain our selling plan** for your invention, gadget or device, patented or unpatented; free particulars available upon request. Demarest And Demarest, Box 95, Battle Creek, Michigan.

**INVENTIONS Wanted.** Patented or Patent Pending. 25 years experience Promoting Inventions. National Service Bureau, 3122 Meramec, St. Louis 18, Mo.

**AMERICAN Congress of Inventors—quick response,** free "Thomas Edison's formulas for success." Inventors, Box 1481, Milwaukee 1, Wisconsin.

**INVENTIONS promoted.** Guaranteed Plan. Write for free booklet "Your Invention." Kessler Corporation, 791W, Fremont, Ohio.

**INVENTORS Don't sell your invention** Patented or Unpatented until you receive our offer. write Cowgill, Box 298, Marion, O.

**SUPERIOR promotions.** Patented; unpatented inventions. Free, informative booklet, guidance. Superior, 338-342 North Rodeo, Beverly Hills, California.

**TOY or game ideas** wanted by large, well-rated manufacturer. For prompt action, best offer, write M. J. Lee Company, 2222 So. Michigan Ave., Chicago 16, Illinois.

**FREE details available.** Exhibit your invention. America's largest invention exhibition. Viewed by thousands of manufacturers, distributors. Entry deadline October 10. California Inventors Association, 681 Market Street, San Francisco 5, California.

## 63 MANUFACTURING

**INVENTIONS! Catalogs of patents for sale.** 3 Back numbers for \$1.00. Inventors' Bureau, 107 W. Van Buren, Chicago 5, Illinois.

## 64 MODELS, MODEL SUPPLIES

**SHIP and yacht model fittings;** blueprints. Send 35c for illustrated catalog—29 listing hundreds of items. A. J. Fisher, 1002-2 Etowah Ave., Royal Oak, Michigan.

**"ST" Steam engine castings,** fittings, boat plans catalog 15c. Ship Models Ltd., 186 Summer, Andover, Mass.



# POPULAR SCIENCE OPPORTUNITIES

**SHIP Models.** Most complete line in New England. Kit, fittings, plans, books, tools, engines, motors. Illustrated catalog 30c. James Bliss and Co., Inc., Dept. PS, 342 Atlantic Avenue, Boston 10, Mass.

**POWER Models.** Unusual steam, gasoline and traction engines, fittings, metals. Comprehensive catalog \$1.00. Charles Cole, Ventura, California.

**SHIP Model kits** and numerous fittings from authentic plans including clippers, trawler, fishermen, frigates, privateer, radio control tug, etc. Send 25c for our new 1956 catalog. Model Shipways, Folio P, 39 West Fort Lee Road, Bogota, N. J.

**LIONEL American Flyer Trains.** Sold, repaired. Big Discounts. Bulletin Free. Catalog 25c. Mack Brothers, 2041 Chicago Ave., Chicago 22.

**BUILD your Hobby** with the world's finest plastic model construction kits. Catalog 25c. Lowilco, Dept. PS-9, 4145 Broadway, Chicago 13, Illinois.

**STEAM engines, boilers, castings.** Catalog 25c. Anton Bohaboy, 2297 Price, Rahway, N. J.

## 65 HOME CRAFTSMAN

**ALL Crafts, Supplies.** Large Free Catalog. National Handicraft, 199 William St., New York 38.

**WOODWORKING and Cabinetmaking** course for beginning and advanced home craftsmen. Only complete low-cost home training program available. Write for free booklet. Interstate Training Service, Dept. G-2, Portland 13, Oregon.

**LEATHERCRAFT.** Send 10c for new 76-page catalog of tools, supplies, kits. Including metalcrafts, enameling, ceramics, all other crafts. Complete stock. Reasonable. Since 1919. Sax Bros., Dept. PS-9, 1111 N. 3rd, Milwaukee, Wisc.

**BUY wholesale** nationally advertised power, hand tools, thousands other products at big discount. Free "Wholesale Plan." American Buyers', Hertel Station, Buffalo 16-R, New York.

**FREE.** Complete Illustrated catalog. Leathercraft kits, supplies. J. C. Larson Co., 820 S. Tripp, Dept. 6326-L, Chicago 24.

**LEARN Art Metalcraft and jewelry making.** Complete, inexpensive, home training course now available. Special tools and materials furnished. Write for free booklet. Interstate Training Service, Dept. L-2, Portland 13, Oregon.

**FREE "Do-It-Yourself"** Leathercraft Catalog. Tandy Leather Company, Box 791-T16, Fort Worth, Texas.

**LEATHERCRAFT for Pleasure or Profit.** Catalog only 15 cents. Tanart, 149-B N. 3rd, Philadelphia 6, Pa.

**LEATHERCRAFT, copper, silversmith,** complete do it yourself kits, handbags, belts, billfolds and many others. Leather tools, supplies, catalogue 25c refunded with first order. Art Handicrafts, PS-194 William St., New York 38, New York.

**FREE catalog.** 1560 Patterns and Designs. Craftplans, 1321-B South Michigan, Chicago 5.

**KNOCKDOWN cedar chest and lumber** free price list. Bedford Lumber Company, Shelbyville, Tennessee.

**129 NEW full-size jigsaw patterns.** Artist-drawn. \$1.00. Craftplans, 1321-B South Michigan, Chicago 5.

**STYLECRAFT** sure fire hits. "Pre-traced" leather kits. Handbags, Billfolds, Filigree Belts, over fifty other projects. Patterns on leather. Why trace? Just carve, assemble and lace. Large assortment "precarved" kits also available. Send 25c for catalog, free folder. Refunded first order. Apache Leather Company, 2804 E. Washington St., Phoenix, Arizona.

**WALNUT, What-not shelves, Table kits,** Glued up panels, Turning blocks and squares. Free Catalogue. Ozark Woods Mfg. Home Craft Div. Dept. 13, Ozark, Missouri.

**LEATHERCRAFT, Copper Enameling,** Mosaic Tile, Shellcraft, Metal Tooling, Beadcraft. Many More Crafts. Free Big Catalog. Kit Kraft, Dept. 339, Studio City 1, California.

**NEW! Fast Cutting, Fine Pitch, Combination Crosscut and Ripsaw.** Produces excellent finish for woodworkers. \$2.49. Free Circular. The DeVorge Co., P.O. Box 267, Peabody, Mass.

**MAKE Your Drill Into A Workshop.** Get a Cope-Saw-Drill-Bit. Have a \$50.00 tool kit for only \$2.95. Saws, Drills, Cuts, Reams; Steel, Wood, Transite, Money Back Guarantee. See International Ad Page 360 of this issue for details. International Drill Co., Box PS, 618 Wyandotte, Kansas City, Missouri.

**METALCRAFT.** Big illustrated catalog free. Aluminum, copper, and enameling supplies. J. C. Larson Co., 820 S. Tripp, Dept. 6026M, Chicago 24.

**LEATHERCRAFT—Leather, Craft Supplies, Dies, Embossing Plates, Copper and Aluminum Tooling.** Catalog 10c. Louis Jones—304 Main, Forth Worth, Texas.

**ELECTRICITY, magnetism set,** \$3.98. Free details. Technifun, 8420 Cedarbrae, Houston 24.

**SQUAREKNITTERS: Make belts, handbags, lanyards, dog leashes, etc.** Special offer! Beginner's book, catalog and quality cord samples 15c. P. C. Herwig Co., Dept. 71-P7, 39 Henry St., Brooklyn 1, New York.

**IF you have a product or service that can be operated on a mail order basis,** write me today. I will send you a Free Kit on "How To Make Money Out Of Classified Advertising." Next issue will be November. Closing date September 25. Hurry—Do it Today! O. K. Kelly, Classified Adv. Mgr., Dept. A9, 353 Fourth Avenue, New York 10, N. Y.

## 66 BUILD IT YOURSELF

**BUILD the patented Little Mint Paper Baler.** Slickest baler for Homes, Offices, Stores, etc. Plans and license \$1.00. L. M. Baler Co., Box 125-B, Wausau, Wisconsin.

**CONVERT any Heating Main into a Radiator.** Write for Details. Bildavector Co., Inc., P.O. Box 233, Wallingford, Conn.

**NOVELTY—Jewelry, Parts and Findings** assorted \$1.50 pound. Imported stones 1000 assorted \$3.00. Beads imported assorted \$1.00 pound. Pearls assorted \$1.00 pound. Add 25c for postage. Merchandise, 19-G East 16th St., New York 3, New York.

**NEW "Handbook" on all types of Gun Cabinets,** tells you, shows you, how you can build your own Deluxe Gun Cabinet. Rush \$1.00 for yours. Coladonato Brothers, Dept. 15, Hazleton, Pennsylvania.

**"DO It Yourself Encyclopedias,"** 12 Giant volumes. Free Descriptive circular. Sample volume \$2.00. Moeller Enterprises, 2525 Hoyt, Muskegon Heights 14, Michigan.

## 67 OLD GOLD, JEWELRY, WATCHES, ETC.

**COSTUME Jewelry supplies.** Catalog and samples. 35c. Largest line in America. Milady-Fair Co., G.P.O. Box 1328, New York City 1.

**RHINESTONES.** Jewelry settings, copper enameling, hobby kits. Illustrated catalog 10c. J & M Novelties, Dept. CK-4, Griffith, Indiana.

**HIGHEST Cash For Old Gold, Broken Jewelry, Gold Teeth, Watches, Diamonds, Silverware, Spectacles, Platinum, Mercury.** Free information. Satisfaction Guaranteed. Rose Refiners, Heyworth Bldg., Chicago 2.

**I Positively Pay More For Old Gold.** Please Try Me. Old Gold Pete, Boyce, Virginia.

**USED and new watches.** \$2 up. Free List. Southern Watches, Gray, Georgia.

**10 SWISS watches \$18.00.** Catalog 20c. Berkowitz, 1150 Castlehill, New York 62.

**MAKE costume jewelry at home in minutes.** Good profits selling friends, clubs. Beautiful earrings and illustrated catalog, 35c. Antoinette Creations, Box 363-M Cooper Station, New York 3.

## 69 FOR THE HOME

**FOAM rubber furniture cushions—Factory seconds 50% discount.** Free catalog. Perma-Foam, 236-A Rhode Island Ave., East Orange, New Jersey.

**AUTOMATIC fire alarm! Protects life, property!** Di Medio, 1748 Jarvis, New York 61.

**CESSPOOLS, Septic Tanks and all clogged drains** cleaned by new, powerful chemical. Sursolvent. Removes grease, soap, tree roots, etc., without expensive digging, pumping and rodding machines. Mix with water and pour down drain. Free literature. Chemical Cesspool & Drain Cleaning Company, Allston 34, Mass.

## 70 OF INTEREST TO WOMEN

**WANT To Make Big Money At Home?** \$5 profit in an hour possible with Invisible Reweaving. Make tears, holes disappear from clothing, fabrics. Steady year-round demand from cleaners, laundries, homes. Details Free. Fabricon, 8336-S Prairie, Chicago 19, Illinois.

**\$2.00 HOURLY possible** doing light assembly work at home. Experience unnecessary. Crown Industries, 8507-G West Third, Los Angeles 48, California.

**GOOD Money In Weaving.** Weave rugs at home for neighbors on \$69.50 Union Loom. Thousands doing it. Booklet free. Caricraft Co., Power Street, Boonville, New York.

**FREE—Big New Wholesale Catalog! Up to 50% saving** for you, family, friends on nationally-known gifts, jewelry, toys, appliances, Christmas cards, etc. Also make money selling part time! Write: Evergreen Studios, Box 846-E, Chicago 42, Illinois.

**GROW Mushrooms.** Cellar, shed. Spare, full time, year round. We pay \$3.50 lb. We Paid John Betts \$7,977.76, he started as amateur. Free Book. Mushrooms, Dept. 181, 2954 Admiral Way, Seattle, Washington.

**EMBROIDER Stamped Linens.** Buy direct from Manufacturer and save. Send for Free catalog. Dept. 187, Merribee, 16 West 19th Street, New York 11, New York.

**NEW Home Club Plan Sensation! Style Shows—Children's, Adults' apparel** easily earns \$20.00-40.00 evenings. Prizes, Gifts, fun! Experience unnecessary. Complete outfit furnished. Beeline Fashions, Bensenville 620, Illinois.

**NEED Funds? Make Big Profits Easily—selling useful kitchen necessities, gifts, cards.** Complete credit to organizations! Free catalog. (Approval samples sent—if requested.) Beb. Moneymakers, PS-9, Oneonta, New York.

**PSORIASIS Sufferers: Discouraged?** Write for Free important information today! Pixacol Co., Box 3583-SW, Cleveland 18, Ohio.

**MAKE money** Addressing envelopes sparetime. Glenway, Box 6568, Cleveland 1, Ohio.

**PROFITABLE Home Business.** Make Fast-Selling Chenille Monkey Trees, Dolls, Flowers, Christmas Corsages. Literature Free. Velva, Bohemia 17, New York.

**\$200 MONTHLY Possible,** Sewing Babywear! No house selling! Send stamped, addressed envelope. Babywear, Warsaw 37, Indiana.

**MORE interest dollars.** Report, "3½% Insured Savings," \$1.00. Day Reports, Box 4-B, Evanston, Illinois.

## 71 FOR SALE MISCELLANEOUS

**GERMAN Precision Micrometers.** Low as \$6.00 in quantity. Guaranteed Accurate. Sample \$8.50. Prepaid Illustrated Literature. Macleans, 312 Belanger, Houma, Louisiana.

**SAVE Postage.** Precision scale accurately weighs first 4 ounces. Unconditionally guaranteed. \$1.00. Details free. Raymond Grant, Box 1064, Downey, California.



# POPULAR SCIENCE OPPORTUNITIES

72

## WANTED TO BUY

**SCRAP Mercury (Quicksilver)** containers supplied—Tantalum, Tungsten, Silver, Platinum, Metallurgical Products Company, Established 1909, 35th & Moore Sts., Phila. 45, Pennsylvania.

**QUICKSILVER**, Sterling, Silver Solders, precious metals, Mercury Terminal, Norwood, Massachusetts.

**\$1.35 CASH** for old electric razors, Brand Names, working or not. Also sell new electric razors, Big Discounts, Terry Burke, 256 Howard, Brockton 14, Massachusetts.

## 73 WEARING APPAREL

**DRESSES 24c**; Shoes 39c; Men's suits \$4.95; trousers \$1.20. Better used clothing. Free Catalog. Transworld, 164-T Christopher, Brooklyn 12, New York.

## 74 RAZOR BLADES, SHAVERS

**AMAZING** Two Different Edge razor blade from Germany. Sample, details free. Baer, Andover 7, Massachusetts.

**DE Blades** None Better, 100 for \$1.00. P.O. Box 452, Wilkes-Barre, Penna.

## 75 TATTOOING SUPPLIES

**TATTOOING** Outfits, licensed course. Brochures 25c. Zels, 728 Leslie, Rockford, Illinois.

**TATTOOING** supplies. Free catalog. Spaulding & Rogers, Court St., Jacksonville, No. Carolina.

## 77 GEIGER COUNTERS & TREASURE FINDERS

**FIND Uranium**, Buried Treasures, Valuable Mineral & Metals with completely Transistorized Detectors! You can buy for less from world's oldest and reputable suppliers of prospecting instruments. Get the same Electronic Metal Detectors, Geiger & Scintillation Counters, Mineralights, Dip Needle, Assay Kits, etc., we sell to U.S. and friendly Foreign Governments, treasure hunters, mining companies & week-end prospectors. Prices As Low As \$14.95. We repair and trade all makes! Get Free literature on Profitable Prospecting & Prospecting For Recreation. Write, come-in or phone—we have the detection instrument you want! Radiac Co., Inc., Dept. PS-9, 489 Fifth Ave., New York 17, New York.

**FIND Buried Treasure**, gold and silver, with Goldak's sensational 3 1/2 lb. "Find-It" locator, only \$49.50. Write for free literature on complete line of mineral, metal locators; Geiger and scintillation counters. Goldak, 1540 W. Glenoaks Blvd., Glendale, California.

**SCINTILLATION** Counter with built-in loudspeaker alarm. Metal Locator works over salt water. No ground pick-up. Geiger Counters, Free Literature. Gardiner Electronics, 2545 E. Indian School Rd., Phoenix, Arizona.

**GOLD**, silver, metal detectors. Geiger counters for uranium. Violites. Sensational new fully guaranteed models. None finer. Information free. Detectron Corp., 5528 Vineland Ave., North Hollywood, Calif.

**FOR Treasure Locators**, Geiger, Scintillation Counters, Mineralights, M-Scope. Fisher Research Laboratory. See Advertisement Page 305.

**URANIUM**, Gold, Silver treasure. New power-packed highly sensitive Metal Detectors, Geiger Counters and Mineralights. Kits and Assembled Models from \$12.50. Lightest weight, guaranteed, free literature. Electronic Applications, Box 8, Arlington 10, Virginia.

## 78 WATCH REPAIRING

**WATCHMAKERS'**—Jewelers' Supplies, Instructions. Catalog 20c. Bengal Company, Culver City, California.

**USED** and new watches. \$2 up. Free List. Southern Watches, Gray, Georgia.

**WATCH** and clock repairing books. Free information. North American, Dept. 26J, 2320 N. Milwaukee, Chicago 47, Illinois.

79

## MISCELLANEOUS

**BUY Wholesale** thousands nationally advertised products at big discount. Free "Wholesale Plan," American Buyers', Hertel Station, Buffalo 16-V, New York.

**WHOLESALE Catalog!!** 30-80% Discounts! Appliances, Musical Instruments, Typewriters, Tools, Watches, Jewelry, Cameras, Housewares, etc. Consolidated Distributors, 1300-18 Main, Clifton, New Jersey.

**GROW Mushrooms**, Cellar, shed, Spare, full time, year round. We pay \$3.50 lb. We Paid John Betts \$7,977.76, he started as amateur. Free Book, Mushrooms, Dept. 182, 2954 Admiral Way, Seattle, Washington.

**WE** ordain and license worthy Fundamentalists Christians in undenominational ministry. Data with official magazine 10c (stamps accepted). Dr. McCaw, 18750 Tilton Avenue, Cupertino, California.

**FORTUNE** Possible raising fishworms and crickets. Free Information, Carter Farm-12, Plains, Georgia.

**BOOKS** on antiques and their prices. Free circular. Warman Publishers, Uniontown, Penna.

**FREE Wholesale Catalogs!** Sporting Equipment — Cameras — Homewares — Everything. Econ-O-Mart, Whippany 6, New Jersey.

**TALISMAN \$3.00**. Brings Fortune, Success. S. B. Wazkar, 51, Khattargully, Bombay-4.

**IT'S Here!** A new and dynamic national program! Better laws, lower taxes possible! In sparkling book form! Rush postcard for exciting details to: Adam-Man Co., P.O. Box 6111, Cleveland 13, Ohio.

**LEATHER** Jackets Renovated Expertly. Reasonably. Free Circular. Dept. 7, Berlew Mfg. Co., Freeport, New York.

**PICTURE** Post Cards Made From Your Photograph. 1000 \$11.00. Raum's, 4154 Fifth Street, Philadelphia 40.

**GERMAN** Address Lists! Anything Manufactured \$1.00. Burke Associates, Manchester 2, Mass.

**TWO** baby shoes bronzed, mounted. Bookends, Ashtrays \$18.00. Free \$9.95 tableware with order. Hurry. Boellaard Service, Marshall, Arkansas.

**RECEIVE**—Magazine Samples, Mails, Catalogues, Offers From Everywhere. Get Listed 25c. Rorick's, Cincinnati 26, Ohio.

**BIG** Mails, four months listing. 25c. Wright Publications, 2276 Hubbard, Memphis 8, Tennessee.

**OWN** a Louisiana Plantation, 1" square, genuine deed. Send \$1. Creole Plantation, Box 485, Sulphur, Louisiana.

**GIANT** Big Mail 25c—William Greener, Box 306-S, Burley, Idaho.

**TIP** For Smart Cigarette Smokers. Use Flips—tiny disposable filter tip. Filter your favorite brand without changing the flavor. Flips give a cool, clean smoke. Send \$1.00 for 30 Flips, good for 600 cigarettes. Postage paid. Money Back Guarantee. Flips, 382 Church St., Elmira, New York.

**PROTECT** Yourself. Special Made Knockout Ring \$1.00. Harold Bell, 246 North Broadway, Lexington, Kentucky.

**GOURDS**, Indian Corn, Strawflowers, Mixed Celosia, Thirty-five pieces \$3.50 Postpaid. Lawrence Bayer, Route 1, Neenah, Wisconsin.

**CIGARETTES**—Roll 20 for 9c. Facts free. Moberly, Box 811, Owensboro, Kentucky.

**LIKE** Swapping??? Read National Swappers Journal. Sample Dime. Alexis, Illinois.

**IF** you have a product or service that can be operated on a mail order basis, write me today. I will send you a Free Kit on "How To Make Money Out Of Classified Advertising." Next issue will be November. Closing date September 25. Hurry—Do it Today! O. K. Kelly, Classified Adv., Mgr., Dept. A9, 353 Fourth Avenue, New York 10, N. Y.

80

## PERSONAL

**"HOW Can I Find Out?"** You Can! Information confidentially developed. Any matter, person, problem. World-wide. Officially licensed. Established 1922. William Herman, 170 Broadway, New York.

**RULE** Others with thoughts. (Full Course.) \$2.00. Delmar Wisdom, 846-S69 Sunnyside, Chicago 40.

**MEXICAN** Legal Matters. A. Espejo, Box 217, Tijuana, Mexico.

**LATEST** Methods treating piles, fistula, Colon-Stomach disorders. Write for free book. McCleary Clinic and Hospital, E944 Elms Blvd., Excelsior Springs, Mo.

**BORROW** By Mail From Postal Finance Co. Employed Men and Women can easily obtain \$50 to \$600 Fast, Entirely By Mail. Repay in small monthly payments. Friends, relatives, employer, tradespeople will not know you are applying for loan. Advise occupation, amount wanted. Postal Finance Company, 200 Keeline Bldg., Dept. 13J, Omaha, Nebraska.

**BALDNESS**—Herbal Formula \$6.25. Stephen Benzo, Herbalist, R-2, New Alexandria, Pennsylvania.

**TIME** Of End date discovered! Free! Write: Harvest, Jefferson City, Missouri.

**BORROWING** by Mail. Loans \$100 to \$600 to employed men and women. Easy, quick. Completely confidential. No endorsers. Repay in convenient monthly payments. Details free in plain envelope. Give occupation. State Finance Co., 323 Securities Bldg., Dept. C-227, Omaha 2, Nebr.

**PSORIASIS** Sufferers: Discouraged? Write for Free important information today! Pixacol Co., Box 3583-SP, Cleveland 18, Ohio.

**ALOHA!** Six Honolulu Postcards—\$1.00 — Retailed free. Receiving — Forwarding \$2.00 Month. Act Now! Fobel, 3132-PS George Street, Honolulu.

**DRUG** Sundries Wholesale, Men, Women. Illustrated list 25c coin. P. P. Ally, 1123, Ellicott, Buffalo 9, New York.

**MEXICO**. Remails three for \$1.00. Mailing service. Information Research. Cultural or trade. Suarez, Box 2104, Mexico City, Mexico.

**END** your confusion! Master plan of universe. \$3 complete book. Kendez Consultants, 2404 S. Central Park, Chicago 23.

**SECRET** Mail Address. \$3 month. Hedgpath, Box 830, Alhambra 24, California.

**DYNAMIC** wonder prayer makes your dreams come true. The most amazing revelation in ages. Don't wait! Write: Teocristic-PS, Box 27683, Los Angeles 27, Calif.

**PALM** Beach Remails 25c. Knowles, 818 Hansen, West Palm Beach, Florida.

**WAKE** Up your mind! Be what you desire! Smash worries, fears, indecision, inferiority. Eye-opening, life-changing facts about self-discovery, and self-training free. Write Applied Christian Psychology, Inc., Box 1924-S, Louisville 1, Kentucky.

**MEXICAN** Law. General Practice. Lic. Cenicerros, Apartado 79, C. Juárez, Chih., México.

**PHOTOGRAPHIC** Xmas Cards. Send Negative—10c for sample. Economy Photo, Glendale, Arizona.

**CONFIDENTIAL** Information. "Licensed investigator". Civil—criminal—claims. C. Grant, 34 Park Row, New York City 38.

**IF** you have a product or service that can be operated on a mail order basis, write me today. I will send you a Free Kit on "How To Make Money Out Of Classified Advertising." Next issue will be November. Closing date September 25. Hurry—Do it Today! O. K. Kelly, Classified Adv., Mgr., Dept. A9, 353 Fourth Avenue, New York 10, N. Y.



## ...TURN CONCRETE INTO GOLD!



**MAKE UP TO \$75 A DAY IN YOUR OWN BUSINESS**

If you want to have your own business — to start a business on your own — here's your big opportunity! New high speed, low cost General block machine produces up to 1,000 concrete blocks a day. Sell all you make to builders, supply houses, and others for homes, factories, buildings, garages. Cash in on the building boom! You can make profits of 100% to 150% — up to \$75. a day! General block machine equipped with 1/2 h.p. electric motor — or can be supplied with gasoline engine — works anywhere, in little space, indoors or out. Operates from ordinary house light socket. Simple, foolproof 3 step operation — so easy a child can do it. Makes superior 3 core blocks any size from 4" to 12". Also makes chimney, sash, corner and other types. Blocks meet any building code anywhere in the country. Materials — sand, water, cement, available anywhere. Simple illustrated operating instructions and mixing formulae for cement and cinder blocks supplied with each machine. Write for FREE folder with full information.

**MOTOR DRIVEN**

R. L. T. of New York City reports: "MY GENERAL BLOCK MACHINE PAID FOR ITSELF IN FIRST 2 WEEKS!" Hundreds now in use the world over! Write for FREE details today!

**EXTRA**

book gives floor plans for 6 sensational concrete block bungalows. Tells how to lay blocks, lay out building lines, mix concrete, build steps, porch and concrete floors all at great savings. Written by experts. Can save many times the cost of the machine! Get it now! No strings attached. Send \$1.

BOOK SENT FREE IF YOU BUY MACHINE.  
\$1 REFUNDED IF YOU BUY LATER.

**GENERAL ENGINES CO.**

DEPT. S-96

ROUTE 130, THOROFARE, N. J.

**HOW TO BUILD YOUR OWN CONCRETE BLOCK HOME**  
Only \$1 Prepaid

HOBBYISTS • STUDENTS • ARTISTS  
ARCHITECTS • ENGINEERS • CONTRACTORS

## DRAFTETTE

CUTS DRAWING TIME IN HALF

\*PAT PEND  
IMPROVES ACCURACY — NEATNESS

Speeds up sketches of any kind! A precision-accurate portable drafting machine that clips on any tablet, sketch pad, notebook or board up to 11" x 17". Eliminates need for ruler, protractor, T square, triangle, compass, lightweight, made of sturdy anodized aluminum. Carry in pocket, briefcase, etc. Last a lifetime. Order Now! Cash, Check, Money Order. **POSTPAID** **\$3.95**

Dealer, jobber inq. invited.

**DAVID MILLER SALES CO.** Dept. S-1, P.O. Box 572  
Established 1937 Beverly Hills, California

**AMMUNITION**

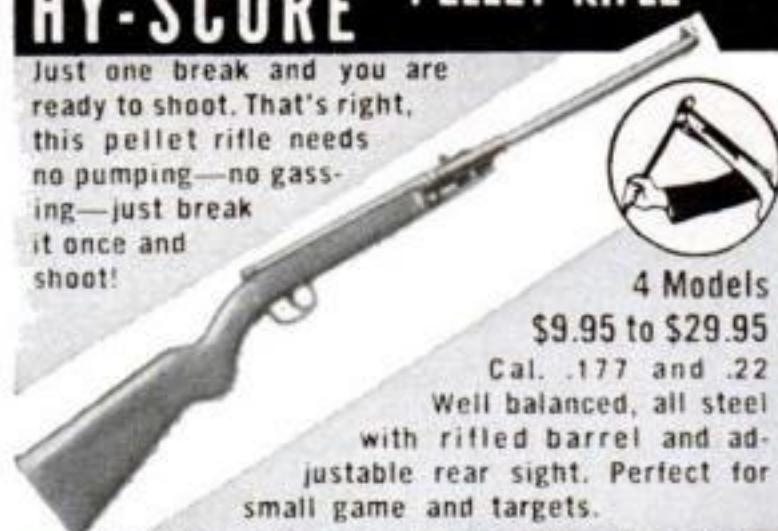


Reload a whole carton for the cost of a few rounds of factory ammunition. Shotgun shells, rifle and pistol cartridges can be reloaded safely and easily with an inexpensive set of famous IDEAL Reloading Tools. 164 page IDEAL Reloaders Handbook ... \$1.00, postpaid. Free folder on request.

**THE LYMAN GUN SIGHT CORP.**  
MIDDLEFIELD, CONN.

**HY-SCORE PELLET RIFLE**

Just one break and you are ready to shoot. That's right, this pellet rifle needs no pumping—no gassing—just break it once and shoot!



4 Models

\$9.95 to \$29.95

Cal. .177 and .22

Well balanced, all steel with rifled barrel and adjustable rear sight. Perfect for small game and targets.

See your dealer or write Dept. SP-9 for literature

**HY-SCORE ARMS CORP.**  
BROOKLYN, N. Y.



**\$2.95 OR 2 FOR \$5.00**

Genuine Telephone Company Upright Telephones, fully re-conditioned, complete with cords, 50 ft. of wire, like new battery, and inter-communication instructions. Complete line of telephones and parts, dial, magneto, extension, inter-communication, army surplus, etc. Write for free list. All shipments FOB Simpson, Penna. C.O.D. orders, 50% deposit.

**TELEPHONE ENGINEERING CO.**

Dept. A96

Simpson, Penna.

**HELP PREVENT CRIPPLING!**



*Polio victims still need treatment! Help provide Rehabilitation*

**Sister Elizabeth KENNY Foundation**

National Headquarters • Minneapolis, Minn.

**TREMENDOUS Profits with Hagen's Exclusive**

**TEAR GAS PENCIL!**

100% PROTECTION  
This Tear-Gas Pencil discharges smothering clouds of tear gas to instantly stop, stun and incapacitate the most vicious man or beast, an effective substitute for dangerous firearms; leaves no permanent injury. No selling experience needed. Handle as a profitable sideline ... **SELLS EASY TO** soon you'll sell it full time. Start now! Send **\$4.95** for complete demonstrating kit of Automatic Tear Gas Pencil, 10 demonstrators & 3 **SERVICE STATIONS** **SMALL STORES** **LOAN OFFICES** **BANKS, HOMES** Powerful Tear Gas Cartridges. Not sold to minors.  
**HAGEN SUPPLY CORP., Dept. P-96, St. Paul 4, Minn.**



## THE ORIGINAL PACKAGED BOAT KITS

World's largest line! Over 200 Boats: Kits, Formed-Hulls, Semi & Custom-finished! All types: Prams - Cruisers! Easy to build! Flying stern, Tredronic bottom, Bulkhead construction!

**Send 25¢ for KIT CATALOG**

52 pages! Includes Victory Series, hardware, paint accessories, Fiberglass! Send \$1.00 for Catalog Plus "Boating Handbook". DEALERS-AGENTS INQUIRE

Made ONLY by

*Custom-Craft*

Top Performance,  
Design, Styling!  
Over 70 Models  
8 to 21 ft.



## BOAT PLANS & PATTERNS Frame-Pac Kits

World's largest selection: over 200 plans, full-size patterns, frame-pac kits! Designed strictly for amateurs! All types: prams, kayaks, racers, runabouts, catamarans, houseboats, cruisers - inboard-outboard 6-40' wood-plywood-steel!

**Send 35¢ for PLAN CATALOG**

Catalog PLUS "Boatbuilding Handbook" \$1.00

CUSTOM-CRAFT - BUFFALO 7, N.Y.

## RADIO CONTROL YOUR MODEL

PLANES  
BOATS  
CARS

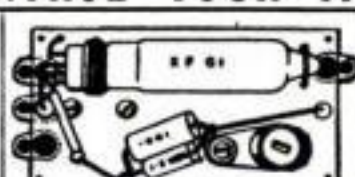
"CUSTOM  
MIDGET"  
RADIO  
LICENSE FREE BAND

**\$9.98**

OPERATES SAME AS \$50.00  
SETS INCLUDES LONG RANGE

TRANSMITTER RADIO, RECEIVER RADIO AND CONTROL ACTUATOR ALL 3  
EASY ASSEMBLY WITH OUR PARTS AND PLANS \$9.98. PLANS ALONE \$1.

RADIOMODELS BOX 36 DEPT. P5 BALTIMORE 6, MARYLAND



DETAILED INFORMATION  
& RADIO CATALOGUE 25¢

SPECIAL "SUPPLY SOURCE  
DIRECTORY" & \$7.00  
SUPPLY COUPON... \$1.00

BOOK "RADIO CONTROL OF  
MODEL AIRCRAFT"  
CONTAINS 14 PLANS \$3.98

RADIO CONTROL  
GARAGE DOOR  
DETAILS \$1.00



## FOR DEPENDABILITY—CHOOSE CONTINENTAL RED SEAL POWER

Now Available with Built-in Generator for Lighting, etc. Series AU, 2, 2½, 3 hp illustrated.

*Continental Motors Corporation*

INDUSTRIAL AIR-COOLED ENGINE DIV.

12800 Kercheval Ave., Detroit 15, Mich.



## NEW! 6" Chimney Fan

No installation required. Just push into chimney flue and plug in. Rid kitchen, dark-room, cellar or office of smoke, fumes, odors, heat. Handsome chrome grill. Fully guaranteed for 1 year. 110 v. AC, 60 cycles.

**Introductory price only \$15.95 postpaid.**

Send Check or Money Order today.

Dealer Inquiries Invited

Fargo Electric Co. • 257-P Niagara St. • Buffalo 1, N. Y.



## OVERLOAD SPRINGS

**\$9.95** Per  
Pair  
postpaid  
2000 LB. SIZE  
\$11.95

For cars and trucks. Front and rear. Gives 2000 lbs. extra capacity for all ½, ¾, and 1 ton trucks; 500 or 1000 lbs. extra for all cars. Easily installed. Guaranteed. State make, model. Dealers wanted.

BRINKMAN MANUFACTURING CO.  
2315 Clay Dept. 6-S Topeka, Kansas

## SAVE GAS, GEARS, TIRES ON YOUR 4-WHEEL DRIVE!

### Stop Front End Drag in 2 W. D.

Get maximum use of your vehicle with these famous hubs! They "take out" the front end in 2-wheel drive, give your vehicle "pick-up" economy, pep, speed, power, handling ease; stop front end gear whine, shimmy. 4-wheel drive as usual, when you need it—automatically, as you shift, with Warn Lock-o-matics, manually with Locking hubs. Models for all makes 4 w.ds. to 1½ tons at truck dealers everywhere, or write:

WARN MFG. CO., Riverton Box 6064-B9, Seattle 88, Wn.



**WARN  
HUBS**

## THE GLASS-PACKED MUFFLER WITH THE DEEP, SMOOTH TONE...

# Dyna-Glas

Exclusive, heavier  
double-wrapped 24-  
gauge outer steel shell  
for longer life

100% Fiberglass\* pack-  
ing combines short and  
long fibers, allows only  
deep mellow tones to  
pass through

Straight-through design  
for power, with big 2"  
inner tube

16-gauge spun-locked  
blowout-proof steel  
heads

Spot-welded nipples  
with nonrestricting full  
collar

Painted lustrous gold color



The big 2-inch straight-through tube of the Dyna-Glas muffler reduces back pressure to a minimum—gives you better performance, increased power, greater mileage. The combination of long and short Fiberglass\* fibers in the packing eliminates the rasping tones common to many Hollywood type mufflers, and lets only the deep, rich power tones through. And its exclusive, heavier, double-wrapped 24-gauge outer shell makes certain your Dyna-Glas will last thousands of miles longer. Dyna-Glas duals and headers give your V8 top performance and power.

Ask your favorite dealer or automotive store for Dyna-Glas mufflers, duals and headers . . . and the famous steel-packed muffler, Dyna-Pak. For name and address of your nearest dealer write to

# Dyna-Glas

Dept. 4J, Toledo 1, Ohio

\*Trade-mark OCF Corp.



# ride for pennies... save dollars with the New 1956 **HARLEY-DAVIDSON HUMMER**



only \$17 per month\*  
up to 100 miles  
per gallon

You can buy and ride the Harley-Davidson Hummer for little more than the change in your pocket. And what an *easy* answer to your get-to-work problem. With a Hummer you leave home later... get back sooner. In and out of heavy traffic in a jiffy. No parking worries with a Hummer either. Try it... ride it — at your Harley-Davidson dealer today. Or, write us for FREE literature.

\*After minimum down payment, includes fire, theft, collision insurance; Federal tax, freight and carrying charge.

**HARLEY-DAVIDSON MOTOR CO.**  
DEPT. PS., MILWAUKEE 1, WISCONSIN

## AMAZING NEW PERSONAL POCKET RADIO



### LISTEN WHILE YOU WALK DOWN THE STREET!

Slips in any pocket—wt. only 7 ozs. Size 2 3/4" x 4 3/4" x 1 1/2". Beautiful Black Gold Plastic Case. NO HOOKUPS—NO WIRES—NO PLUG-INS! Self-contained, 150-hour life flashlight batteries and BUILT-IN ANTENNA. POSITIVELY NO AERIAL HOOKUPS EVER! GUARANTEED RECEPTION OF RADIO STATIONS TO 50 MILES up to 1500 miles for powerful stations! New patented Super-regenerative Duotriode tube and transformer audio stage for sharp selectivity and sensitivity! Easy to use top tuner (while walking). Tiny, plastic personal ear plug.

LET'S YOU ALONE LISTEN WHILE YOU WALK. VISIT. WORK. RIDE OR SLEEP ANYTIME—ANYWHERE. MONEY-BACK GUARANTEE AND ONE YEAR SERVICE GUARANTEE. (ck. mo) and pay postman \$14.95 plus postage on delivery or send \$19.95 for postpaid delivery. GET YOUR TINYTONE REAL POCKET RADIO now and be ready to listen to Civil Defense Alarms, news, music, sports, etc., on a moment's notice without bothering those around you. NOT AN UNWORKABLE, INCOMPLETE KIT OR PLAYTHING, BUT A REAL POCKET RADIO! Shipped complete with batteries—Ready to listen! Available only from: **WESTERN RADIO, Dept. AP59, Kearney, Nebr.**

## JEEP OWNERS

STA. WAGONS • JEEPSTERS • PICK-UPS!

RE-POWER NOW with a Ford 6 or 8 cyl. engine. Our F-J ADAPTOR-CONVERSION KITS fit ALL Willys Jeeps incl. 1956. Kit No. 4-K for 1949-56 Ford engines in 1954-56 Mod. 6-226 Jeep Sta-Wgn & Trucks priced at \$52.85 incl. Fed. tax. Kits for 1932-56 Ford engines in all other Willys Jeeps... \$43.25 tax incl. instructions furnished. Write for free details or send check or M.O. for prepaid shipment. Please indicate year engine you will use and whether 2 or 4 Whi-Dr. Order NOW.

**HOOSIER MACHINE PRODUCTS CO.**  
314 S.E. 6th St. Telephone No. 676 Pendleton, Oregon

### FLYING SAUCER MAGAZINE

'SAUCERS'—Offset-printed, quarterly, illustrated UFO periodical, averaging 16 pages per issue. Contents by such noted authorities as Major Donald E. Keyhoe (who asks the Air Force eleven pointed, and as yet unanswered, questions), Edward J. Ruppelt (former chief, USAF Project Blue Book), John Otto (on attempted extraterrestrial communications), and many others. 'SAUCERS' publishes the latest UFO sighting reports... News and listings of recent Flying Saucer books... Photographs of UFO's and varied personalities. Read about the Canadian Flying Saucer Study... Signals from Other Planets... Lite-Beam Communication Units... all by experts-in-their-field. Subscribe today—4 issues (approx yr.), \$1.00; 10 issues, \$2.50. Four different back issues available at 25c each. (No samples.)

**FLYING SAUCERS INTERNATIONAL** Dept. PS-1,  
P. O. Box 35034—Los Angeles 35, California

BIG NEW  
WHOLESALE  
CATALOG  
FREE!

WRITE TODAY FOR  
FREE CATALOG  
SEND POSTCARD

**NOW! Save Up to 50%**  
on Nationally Advertised Gifts

Use this big, new FREE CATALOG to buy all kinds of gifts and merchandise for yourself, family, friends, neighbors. Terrific saving on big-name items. Also, make money spare time taking orders from others!

**EVERGREEN STUDIOS**

Dept. 57, Box 846 Chicago 42, Ill.

**SOCK-O**

**SUPER SLINGSHOT**

SILENT • RIFLE FAST • POWERFUL • ACCURATE

Great for small game and target shooting! 45 pound pull. Big, sturdy stock. Lively raw rubber. Sweet shooting. Free! 50 Sock-O "cannon balls", extra rubber and target. Sent by return mail. Guaranteed. Every sling fully tested. No COD's please.

**SOCK-O, Box 94, Universal City, California.**



42 TOP PERFORMING MODELS, 8' thru 18'  
... from \$39.25 incl. frt.

Runabouts, Cruisers, Convertibles, Fishing, etc., for every purpose with modern styling, advanced design. No experience necessary, amateurs can easily assemble. Save 1/2 to 3/5 "factory-built" prices!

FIBERGLAS, TRAILERS, ACCESSORIES

**UGER INDUSTRIES, INC.**

DEPT.  
A-9

3404 Lyndale S.  
Minneapolis 8, Minn.

**FREE!**  
**BOAT**  
**KIT**  
**CATALOG**



# GUNS

**AUTHENTIC  
REPLICAS**

Reproduced in Actual Size, Design and Balance. Made of Solid Cast Aluminum. Finished in Gun-metal Black.

## START COLLECTING

- ☐ German P-38
- ☐ Colt Cobra .38
- ☐ German Luger
- ☐ German Mauser
- ☐ Spanish Moxley
- ☐ Russian Tokarev
- ☐ Italian Brevetti
- ☐ Japanese Nambu
- ☐ Frontier .44 Colt
- ☐ Belgian Automatic
- ☐ Colt .45 Automatic
- ☐ Czechoslovakian Pistol
- ☐ S & W .38 Police Special

Special! 2 for \$5.00 ppd.!

**3.00**  
EACH  
POSTPAID

Folder, 10c

Send Cash,  
Check or  
Money Order

No COD's  
No Canada Orders

## LYTLE NOVELTY CO.

2656-59 Fashion Avenue  
Long Beach 10, California

S & W .38  
Police  
Special

Also Eshelman  
TRACTORS  
... RIDING  
... ROTARY  
MOWERS  
... ROTARY  
TILLERS  
at amazing  
savings.  
Write for Free  
Literature.

## ESHELMAN GOLF CAR

GASOLINE ENGINE

36 Holes Per Gal. Gas  
Up To 20 Miles Per Hr.  
Costs small fraction of most other cars. Ideal for golfers. Also Child's 2 pass. Cars. Write For Free Literature And Rider Agent Plan.  
ESHELMAN CO., Dept. MC-49  
109 Light St., Balto. 2, Md.



Patented

Shipping Points: BALTIMORE - CHICAGO - KENO



*Auxiliary Accelerator...*

## LEFT FOOT PEDAL

Step on the gas with either foot with equal ease. Drive relaxed.

Guaranteed for the life of the car—

which originally installed on. FITS ALL CARS.



PRICE \$6.95  
Delivered to You

ORDER FROM  
R. V. LEHNER, Ness City, Kansas

## 60 POWER TELESCOPE

**\$3.98**

VARIABLE EYEPIECE 20X-40X-60X—BRASS BOUND

NEW! Three telescopes in one, 3 different magnifications, 20 power for ultra-bright images with 40 and 60 power for extra long range. Guaranteed to bring distant objects, people, sports events, ships, moon, stars, etc. 60 times as close.

Most powerful for anywhere near the money. 5 sections. Closes to 1 ft. long. Contains 4 ground and polished lenses. Also used as a powerful compound microscope. Directions included. Mass production enables us to offer this instrument at amazing price of \$3.98 complete. Money back guarantee. We pay postage. Get yours today. Criterion Co., 331 Church St., Hartford, Conn., Dept. PSB 39

## SAVE \$60 BY

ASSEMBLING  
YOURSELF THIS

## 2½ H.P. OUTBOARD

\*Assemble this first quality full 2½ horse-power outboard motor yourself in two hours and save \$60 off its regular \$119.95 value. All you need is a screwdriver and crescent wrench and you'll have a sleek, smooth-running power-house that will let you cruise or troll any 10, 12 or 15 ft. fishing or pleasure craft, and your cost will be less than half any other 2½ H.P. outboard on the American market or your money back! Absolutely all precision parts including gaskets and spark plug. All you do is add fuel. Complete step-by-step illus. instructions. FEATURES: Air cooled, 2½ hr. cruising, 1 to 8 M.P.H. speed. Full pivot, forward and reverse, double transom clamps. Weight: 22 lbs. All parts warranted. It's brand new and a fine product. Try it and let me know how you like it." Frank E. Williams, Pres.

Continental Speed Kit (complete) . . . \$59.95  
\$20 dep. for C.O.D. Shipped F.O.B. Culver City, Calif. Calif. resid. add 4% state tax.

CONTINENTAL MANUFACTURING CORP.  
Washington Blvd. at Motor Ave., Culver City 4, Calif.



# CAN'T MISS!—



## or COULD YOU?

Meat-in-the-freezer accuracy is measured in fractions of an inch. That's why the Marlin 336—with the extreme

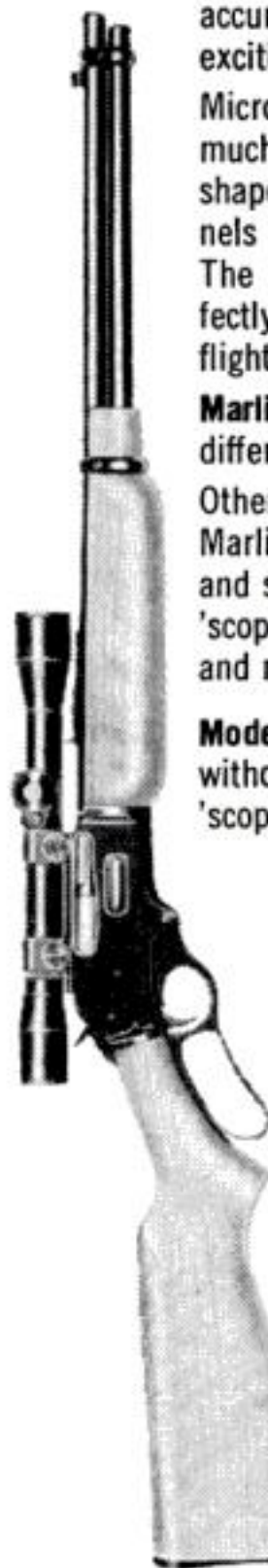
accuracy of Micro-Groove Rifling\*—is the most exciting big-game rifle for '56!

Micro-Groove Rifling has 16 lands and grooves, much finer than the ordinary, and specially shaped. Instead of squeezing wide, deep channels into the bullet jacket, they grip lightly. The projectile remains smoother, more perfectly shaped and balanced, and is truer in flight and less affected by winds.

Marlin's 20-25% accuracy bonus can mean the difference between a clean kill and a long chase!

Other important advantages found only in the Marlin 336 are super-strong round breech bolt, and side ejection, allowing the lowest possible 'scope mounting. It's this season's modern—and most talked about—big-game rifle!

Model 336-30/30 Regular Carbine, **\$72.95\*\*** without 'scope. Illustration shows how lowest 'scope mounting can be done only on Marlin.



## SEE MARLIN'S NEW BOLT-ACTION HIGH-POWER

Model 455—in .243, .244, .270, .30/06, .308 and .358 cal. This fine sporter has the famous FN Mauser action—specially designed for low 'scope mounting. Crisp, adjustable Sako trigger mechanism. With Lyman 48 receiver sight. Medium weight barrel. Monte Carlo stock. 5-shot box magazine. Micro-Groove Rifling, for extreme accuracy. **\$149.95\*\***

\*Patent applied for. \*\*Slightly higher west of the Rockies. Subject to change without notice.

THE NAME FOR GAME

**Marlin**

FINE GUNS SINCE 1870

MARLIN FIREARMS COMPANY, New Haven, Conn., Dept. PS-96

Please send me your catalog with photo-illustrations and complete descriptions of all Marlin Guns. Also send me a pack of (check preference) ( ) single- or ( ) double-edge Marlin Razor Blades, I enclose 10c for handling.

Name.....

Street.....

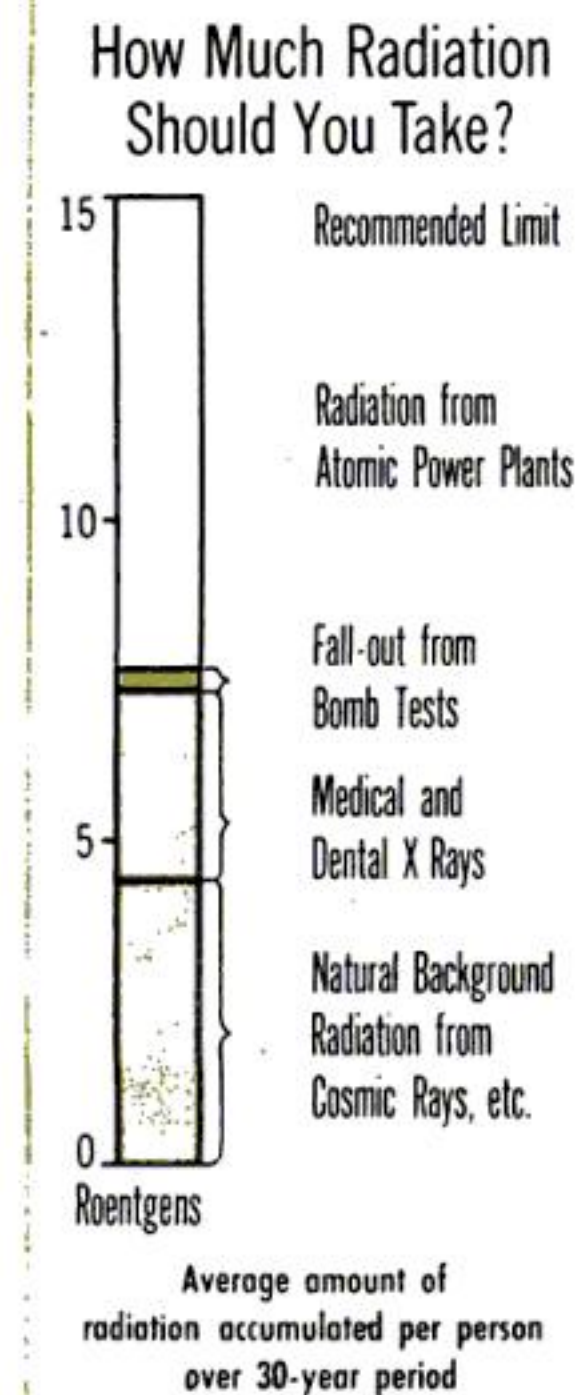
City.....Zone.....State.....



**Danger . . . radiation**—not just in atomic laboratories but everywhere. That was the somber warning from the experts who studied the genetic effects of atomic radiation for the National Academy of Sciences. They agreed that any radiation is harmful, that we are already receiving surprisingly high doses, and that increased doses, which are inevitable, should be kept as low as possible.

The greatest danger is to future generations. Radiation permanently changes the heredity cells that shape a person's children and his children's children and so on. The more radiation, the greater is the number of heredity changes. The changes nearly always cause harm, but it may be of any degree and any kind: slightly weaker babies, less intelligent babies or no babies at all.

Most of the radiation we now get is unavoidable. It comes from natural sources—cosmic rays and radioactive rock—to which people have been exposed since the human race evolved. But medical and dental X rays add, on the average, nearly as much more (see chart). Fall-out from bomb tests contributes comparatively little.



The report recommended a limit, averaged over the entire population, of a total of about 15 roentgens of radiation every 30 years. (Most people have their babies before they reach 30). The maximum, applying to individual persons such as atom workers, would be about 55 roentgens. Both of these limits are calculated risks; if the average limit is reached for one generation, it will probably cause the following generation to bear 50,000 babies that are defective in some way.

**Musical furnaces** may be coming. A University of Cincinnati engineer reports that air is heated more efficiently in a furnace if it is vibrated by sound waves coming from a musical reed.

**Happy pills** are making psychiatrists unhappy. They warn that the pills, which simply make people stop worrying, should be used only by those actually under medical care. Right now everybody from truck drivers to TV stars is gobbling them—35,000,000 prescriptions for these drugs alone are expected to be filled during this year.

**Aluminum cans** will replace tin ones in the pantry within three years, predicts Dr. Nelson Murphy of Virginia Technical Institute. He has discovered a new way to plate steel with aluminum, which is fairly plentiful in the U.S. All tin, which is a vital military material, must be imported.

**Good books.** Workshoppers will find solid information in two new paperbacks by PSM contributors. *How-to-Do-It Pictures* by Darrell Huff and Paul Corey (Eastman Kodak Co., Rochester, N.Y., 50c) explains how to make how-to-make-it photos. *Hobby Tools* by Robert Gorman, with illustrations by Henry B. Comstock (X-ACTO, Inc., Long Island City, N.Y., 75c), goes into detail on the technique of using handicraft tools.





# 80 TIMES AROUND THE WORLD — AND NOT A SINGLE BATTERY FAILURE !

## Test Proves Auto-Lite Sta-ful Finest Battery Money Can Buy

A dramatic test of battery endurance, conducted by Auto-Lite battery engineers, has proved to motorists that battery worries can be avoided!

This rugged and demanding test covered two million miles of actual daily driving by 100 car owners in every section of the United States and Canada. The batteries used were Auto-Lite Sta-ful Batteries which have three times the liquid reserve of ordinary batteries.

**FINAL RESULT:** Not one single battery failed! After 2 years' continual use, 95% gave better cold weather starting than required of new batteries.

The test also proved that Auto-Lite Sta-ful *needs water only 3 times a year in normal car use*. You can get an Auto-Lite Sta-ful for just a *few cents a month* more than you'd pay for an ordinary battery.

Dry Charged...  
Fresh  
when you buy!

Available for 6- and  
12-Volt Electrical Systems.



# AUTO-LITE

## sta-ful

Needs water only 3 times a year\*

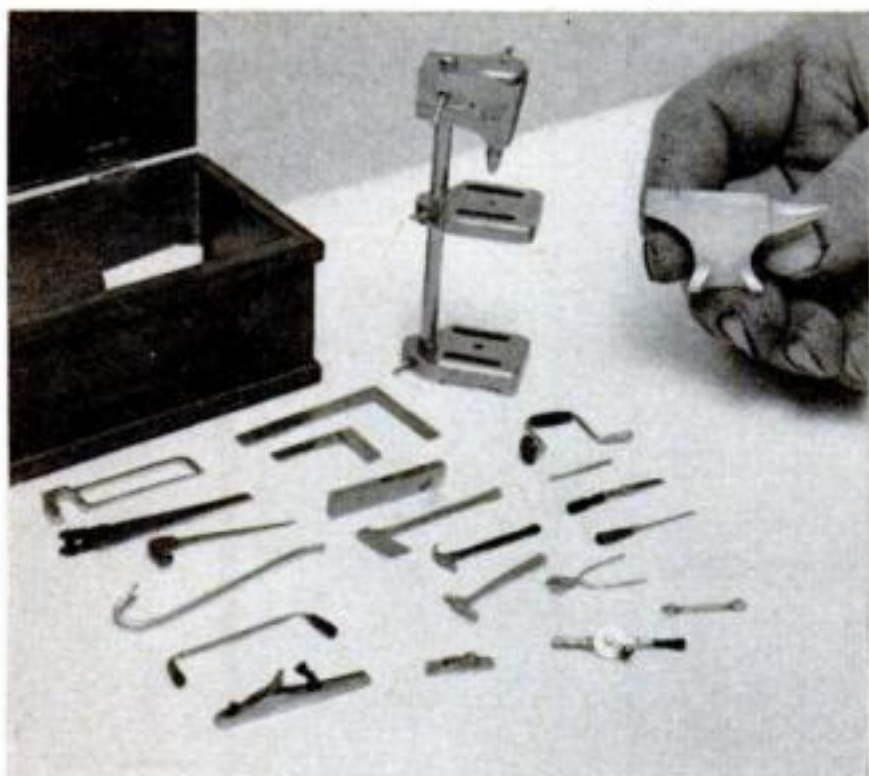
\*In normal car use

Auto-Lite manufactures over 400 products, including Spark Plugs, Batteries, Wire and Cable and Automotive Electrical Systems . . . sold throughout the United States and Canada

SEPTEMBER 1956 93



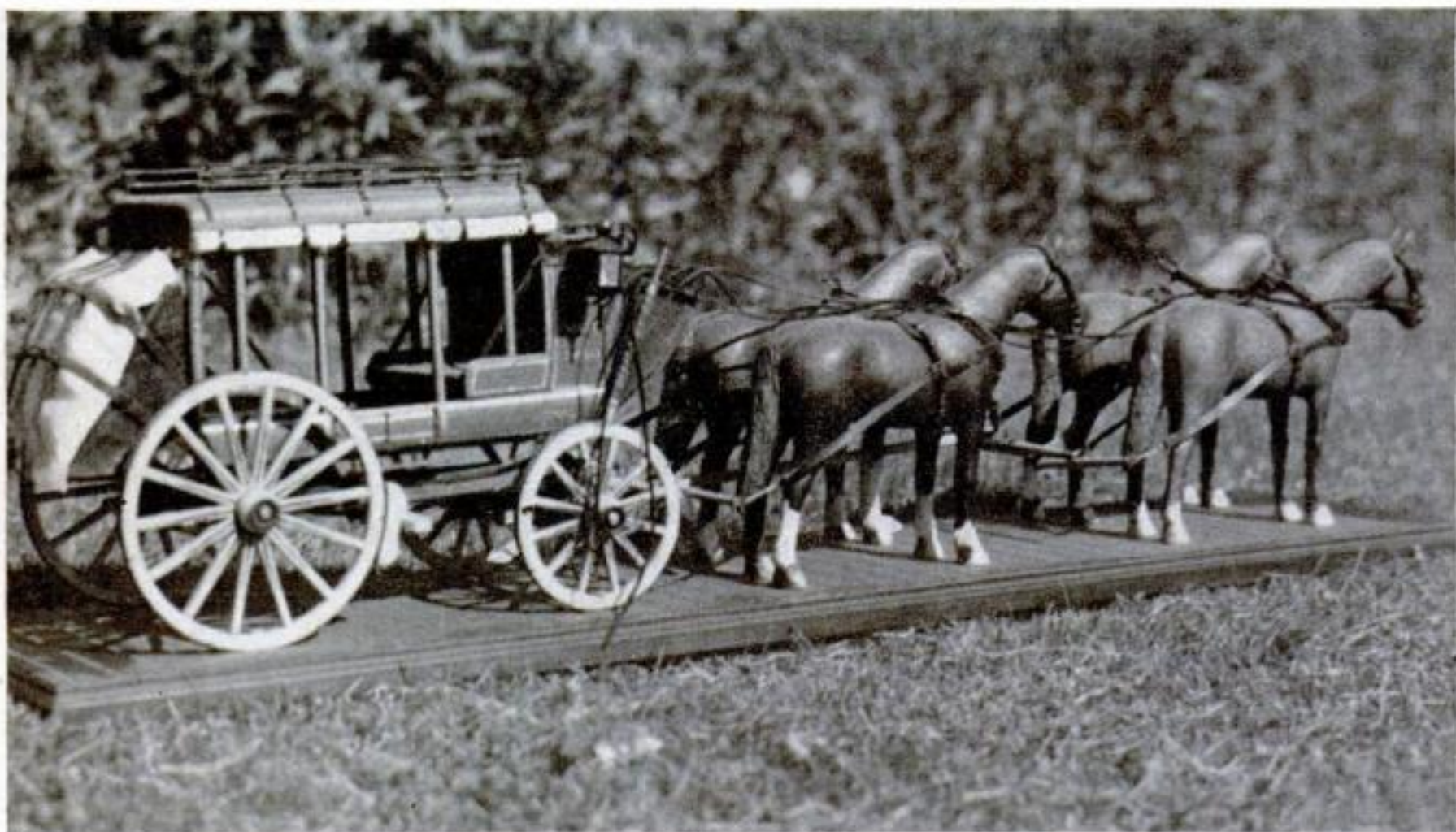
# Prize Projects BY PS READERS



**He Makes Tiny Tools.** The hobby of Edward H. Moore of Orrington, Me., is constructing miniature tools, mainly by filing them out of bits of brass. As many as 11 separate parts were used in a carpenter's plane and 10 in a hand drill. Tool handles and the chest are mahogany.



**Tractor Has Two Gearboxes.** A Model T front axle, shortened and inverted, carries the front wheels on this riding tractor. An eight-hp. air-cooled engine drives two Chevy transmissions in series. Vincent Johnson built it to cultivate a garden on his Kennedy, Minn., farm.



**Famous Stage Is Modeled.** Jack Clennin of McCloud, Calif., made this model of a Wells Fargo stagecoach that Buffalo Bill once drove. Working from plans

published by PSM 19 years ago, Clennin kept the detail so exact that even the tiny harness buckles can be undone. The horses are carved from sugar pine.

Have you recently completed a shop project of which you are particularly proud? Send a good picture of your finished work, along with the negative and a brief description,

to POPULAR SCIENCE MONTHLY's Mechanics and Handicraft Editor, 353 Fourth Ave., New York 10, N. Y. We will pay \$15 for each item that is accepted for publication.



# IDEAS FROM WELDWOOD

## THIS MONTH'S PROJECT—DESK-SEWING TABLE



Here is one of the most versatile, easy-to-build pieces of furniture you can have in your home. First, it's a desk—durable and steady for tots' or teens' homework. Then, it's a sewing table too—with a hinged top that swings out to form a generous 4' x 6' work area for cutting out patterns. (When not used for sewing, it can be wheeled back against the wall.) And the drawers and doors make it a spacious storage cabinet. For Easi-Bild® Plan, see coupon.

### This Month's Hints

#### Installing curtain or drapery rods?

You can avoid drilling into plaster or masonry by following this method. First, make sure your plaster is perfectly sound. Next, take two pieces of plywood—about 2" square and 3/4" thick—drill or nail curtain rod braces and holders to the pieces of plywood. Coat one side of each with Weldwood Contact Cement. Next apply Contact Cement to wall at top corners of the window. Press the blocks to the cemented wall areas and they will be in place permanently. E. W.—Arlington, Virginia.

**\$10 for your ideas**

for "This Month's Hints," if accepted for publication. (Hints must apply to some Weldwood product.) Send them to Weldwood Hint Editor, 55 West 44th Street, New York 36, N. Y.

**HAVE A QUESTION?** Send it to "The Weldwood Question Box," 55 West 44th St., New York 36, N. Y.

Constructing this desk-sewing table is really easy. For it is made of Novoply® panels framed with angle irons. Novoply is Weldwood's 3-ply all wood panel made of resin-impregnated wood chips and flakes fused under tremendous heat and pressure. Because of this exacting construction, Novoply panels are extremely stable and virtually warp-free! You'll find Novoply easy to work—resists splitting from nails or screws.

Novoply has a textured, mosaic-like appearance that's handsome and distinctive. So you can either finish it natural—paint it—or cover it with durable Micarta® for scuff-proof, scratch-resistant service. Send for plans today, and see if your kids don't *almost* enjoy doing homework this year.

\*T.M. Reg. Easi-Bild Pattern Co.

### THE WELDWOOD QUESTION BOX

**Q.** I've got an old, scratched, and banged upright piano that still has a good tone. Is there any easy way to refinish it or "dress it up" so it will look as good as it sounds?

**A.** Of course you could scrape the finish off down to the bare wood, but that takes a lot of elbow grease. Why not try this: bond 1/4" thick Weldwood hardwood plywood to the exposed parts of the piano with Contact Cement (one quart should do the job). With the big

4' x 8' panels you can cover the piano quickly and handsomely. You can choose from a great variety of woods, too. Birch, for example, will give a nice modern appearance, while mahogany will blend in well with traditional furnishings. Remove ornamentation such as carved moldings, and roughen the polished surfaces with sandpaper to assure good bonding. Take the piano case apart and cover each part separately to make the job easier.



# Weldwood®

A product of  
**United States Plywood Corporation**  
*Weldwood—The Best Known Name in Plywood*

**United States Plywood Corporation, Pattern Dept.**  
**P. O. Box 215, Pleasantville, New York**  
Enclosed find 50c for which please send me Pattern #543—  
Desk-Sewing Table. PS 9-56

**NAME**.....  
**ADDRESS**.....  
**CITY**.....**STATE**.....



.....  
 Everyone has his own pet idea of a gadget that he would like to see in general use. These five ideas were suggested by POPULAR SCIENCE readers. What is *yours*? We will pay \$5 for each one published. Please use Government postcards only. Write your name and address clearly. Contributions cannot be acknowledged or returned.  
 .....

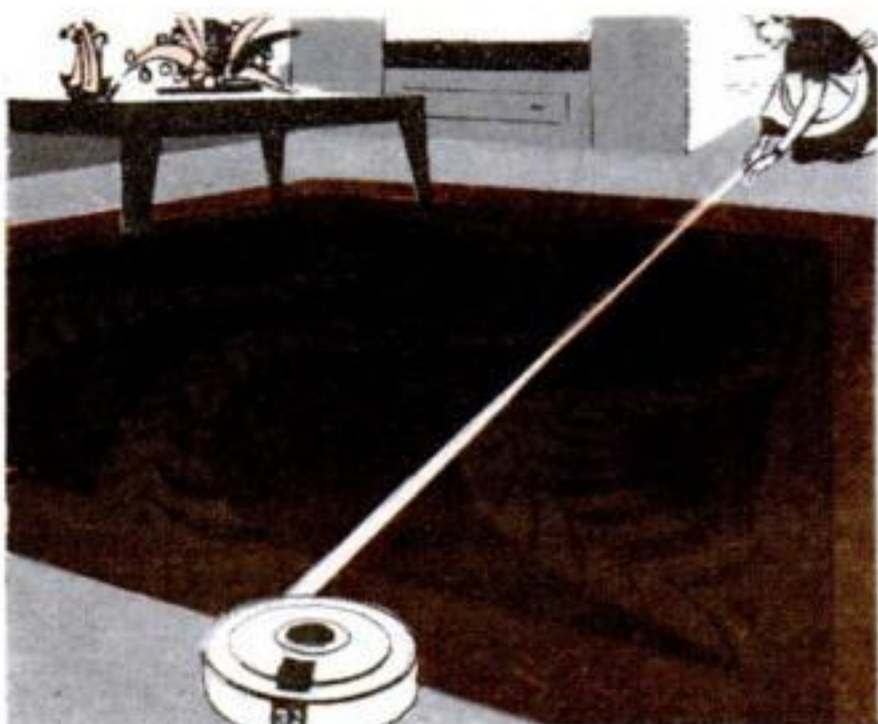
# I'd like to see them make...



**PAINT PENCILS**, like crayons, to match every shade of paint shown on the season's color wheel. They'd make touch-up jobs on your automobile a cinch.—*M. M. Carey, New Castle, Pa.*



**A REMOVABLE COWL** on car dashboards so that repairs to the wiper motor, radio and other equipment behind the dash could be made easily from above.—*Floyd L. Ketel, Portland, Ore.*



**A WEIGHTED STEEL TAPE** with a dial register in the heavy housing. One person could run the tape across a room and return to the dial for a reading.—*P. Feller, North Arlington, N. J.*



**A SHOESHINE BOX** with clamps on each side to hold the shoe steady while you polish it. Adjustable clamps like those used on roller skates would do the trick.—*Andy Lea, Seattle, Wash.*



**THIN ONE-SIDED PHONOGRAPH DISKS** with contact adhesive on the backs. Then you could buy two different platters you want and stick 'em together.—*Bill Wintrich Jr., Columbus, Ohio.*





# Once a dreary attic . . . now a cheerful room!



With a few household tools and Gold Bond Insulation Planks and Tiles, you can build a room just as attractive as this in your attic or basement.

**Walls of Gold Bond Insulation Planks** go up fast. The Planks are lightweight, easy to handle. Arrange them vertically, horizontally or diagonally over furring strips and nail or staple. Interlocking edges hide the fasteners. The Planks come with a flame-resistant finish of ivory or a random assortment of

four harmonizing colors . . . take paint perfectly, too. They are sound-absorbent for restful quiet. And they insulate the room, keep you cooler in summer, cut fuel bills in winter. **Next, nail or staple the ceiling** of Gold Bond® Insulation Tiles in place. Interlocking edges hide fasteners, assure accurate positioning. The Tiles sponge up noise, make the room ideal as a bedroom, den, game room.

**See your Gold Bond dealer** for materials and helpful advice. And ask about easy terms.



**Gold Bond**

BUILDING PRODUCTS

NATIONAL GYPSUM COMPANY

**Gold Bond**  
**HOW-TO-DO-IT**  
**PLAN #14**

**MAIL THIS COUPON NOW!**

National Gypsum Company, Dept. PS96  
Buffalo 2, New York

Please send me Gold Bond's free "How-to-Do-It" Plan #14... giving complete instructions on how to use Insulation Planks and Tiles.



Name

Address

City  Zone

County  State





No Bathroom  
too hopeless...  
No Husband  
too helpless...

for **FORMICA**  
*Laminated Plastic*

Customers buy Formica because it is  
a brand name they know and trust.

**DEMAND THIS CERTIFICATION**

We protect this faith in our product  
by certifying every sheet with a  
wash-off Formica marking. It is for  
your protection and guarantee that you  
are getting genuine Beauty Bonded Formica.

There may be remodeling jobs beyond the skills of the average husband — but applying Formica is not one of them. The really dramatic focal point of any modern bathroom is the Formica Vanitory.<sup>®</sup> And this is the part that is easy enough for anyone who can saw a straight line. You'll find color blending choices in endless combination when you see the 14 brand new colors in the Sunrise Line of more than 70. Cut your Formica to shape with an ordinary carpenter's saw, apply Formica Contact Bond Cement to both surfaces, let it dry for 40 minutes and roll it down with a rolling pin.

Complete picture instructions and kitchen and bathroom idea literature. Write . . .

**Free!**

**FORMICA** Subsidiary of American Cyanamid  
4595 Spring Grove Ave., Cincinnati 32, Ohio  
In Canada: Arnold Banfield & Co., Ltd., Oakville, Ontario

*This mark certifies genuine*  
RUB OFF WITH LOTS OF BAR SOAP ON A DAMP CLOTH



Seeing is believing. If this wash-off identification is not on the surface, it's not FORMICA.



*It's the little things . . .  
the details that you can add  
yourself . . . that will  
Make Your Home a*



# Show Place

Even a modest home today may  
qualify as the show place of its



neighborhood, a home that will draw admiring glances from  
passers-by and cause guests to ask for a tour of inspection.

A show place is the sum of many distinctive little things, each  
blended into a pleasing whole. Happily,  
these details are nearly always projects  
that a homeowner can logically undertake with his own hands.



You'll find a selection of show-place ideas on the following pages,  
all built with materials available from  
*your* lumber-building materials dealer.



It's unlikely that you will want to build them all. But whatever  
your needs and your future plans, you'll find some that you can fit  
into your own particular scheme of making *your* home a show place.





*Show Place*

# Stairway

*is equally at home in living*

**P**LANNING a basement game room or new home? Then consider the merits of an unusual but practical stairway in the home of the Ray Piochs:

- Its open construction makes a room look bigger.
- It is modern in concept, an asset to contemporary furnishings.
- It is easier to build than the conventional stairway.

Planning a game room for their Long Island home, the Piochs ran into a troublesome problem with the old stairway.

How could they decorate, or camouflage, those old rough steps to blend into their proposed show-place game room?

Ray Pioch is a man with vision and ideas—and incidentally the artist who paints for *POPULAR SCIENCE MONTHLY* such striking illustrations as the proposed city in space in last May's issue.

His old stairway descended midway in the rectangular basement—parallel to the ends of the house. A wall could go beside it, with the game room and stairway occupying one end of the basement, the

*[Text continued on page 244]*

**IN A LIVING ROOM,** stairway might look like this one, sketched by Harry Marinsky, illustrator and color stylist who styled the game room shown above and on the cover. Furniture in the cover photo is made by Arbuck, Inc., New York.



**CHILDREN'S LUNCH BAR** occupies the corner behind this handsome game-room stairway in the Long Island home of Mr. and Mrs. Ray Pioch. The bar, which is 48" long, is fastened to the stair-supporting posts.

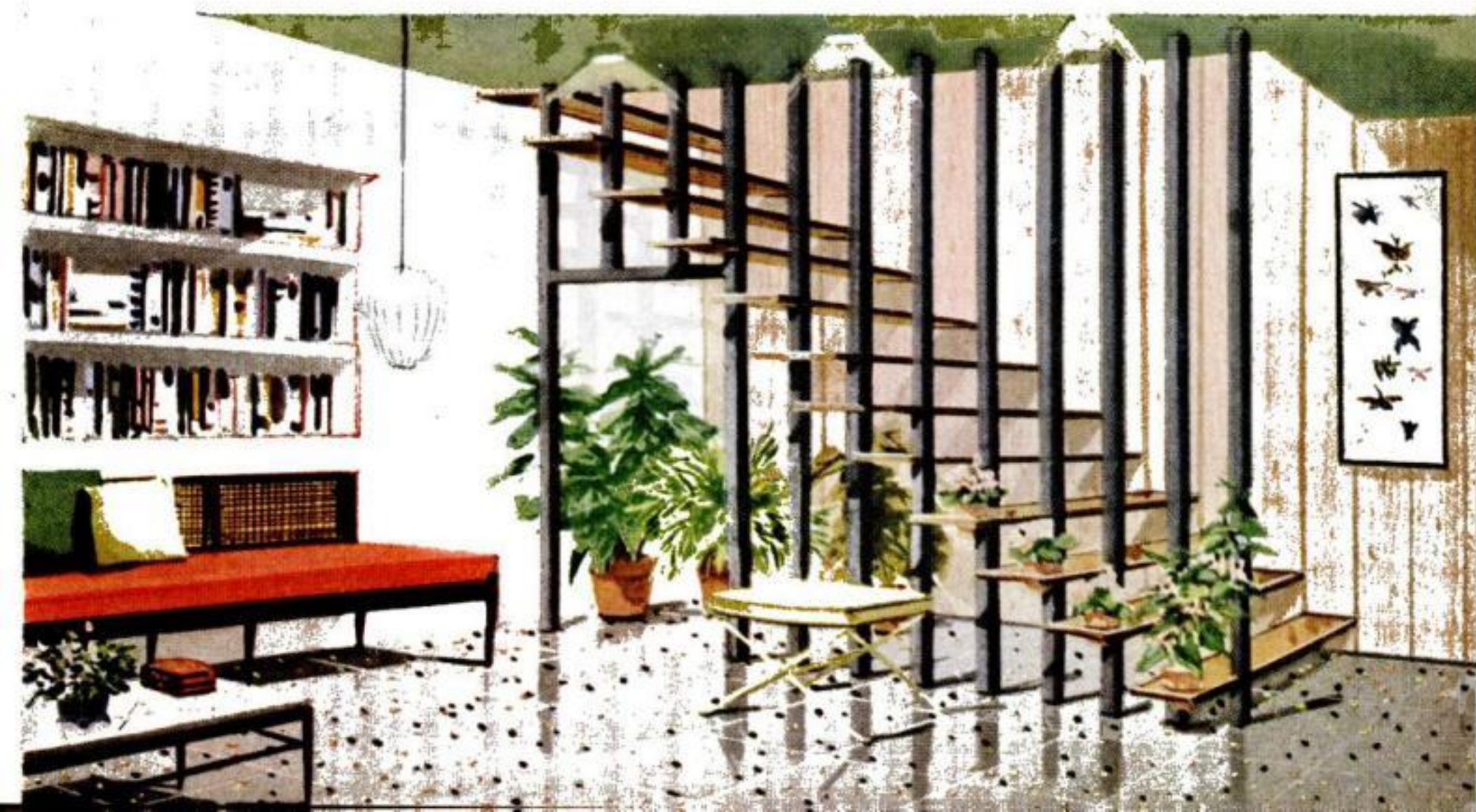
**NEW STAIRWAY** at left was installed in place of old set of steps shown below. A paneled wall at far side of stairway now separates game room from utility room. A door at foot of stairs connects the two.



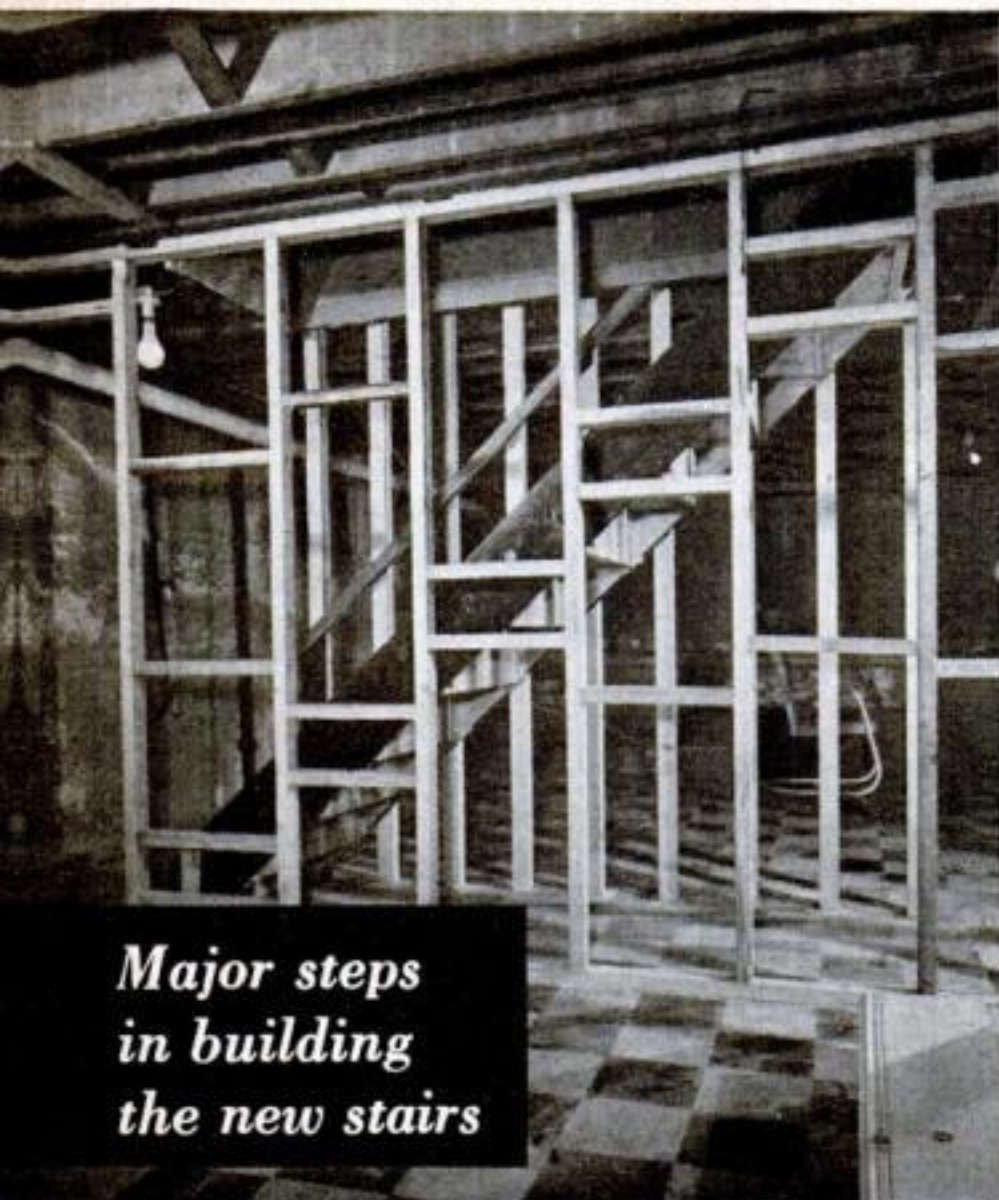
PSM PHOTOS BY  
W. W. MORRIS

# for Moderns

*room or basement game room. And it's easy to build.*





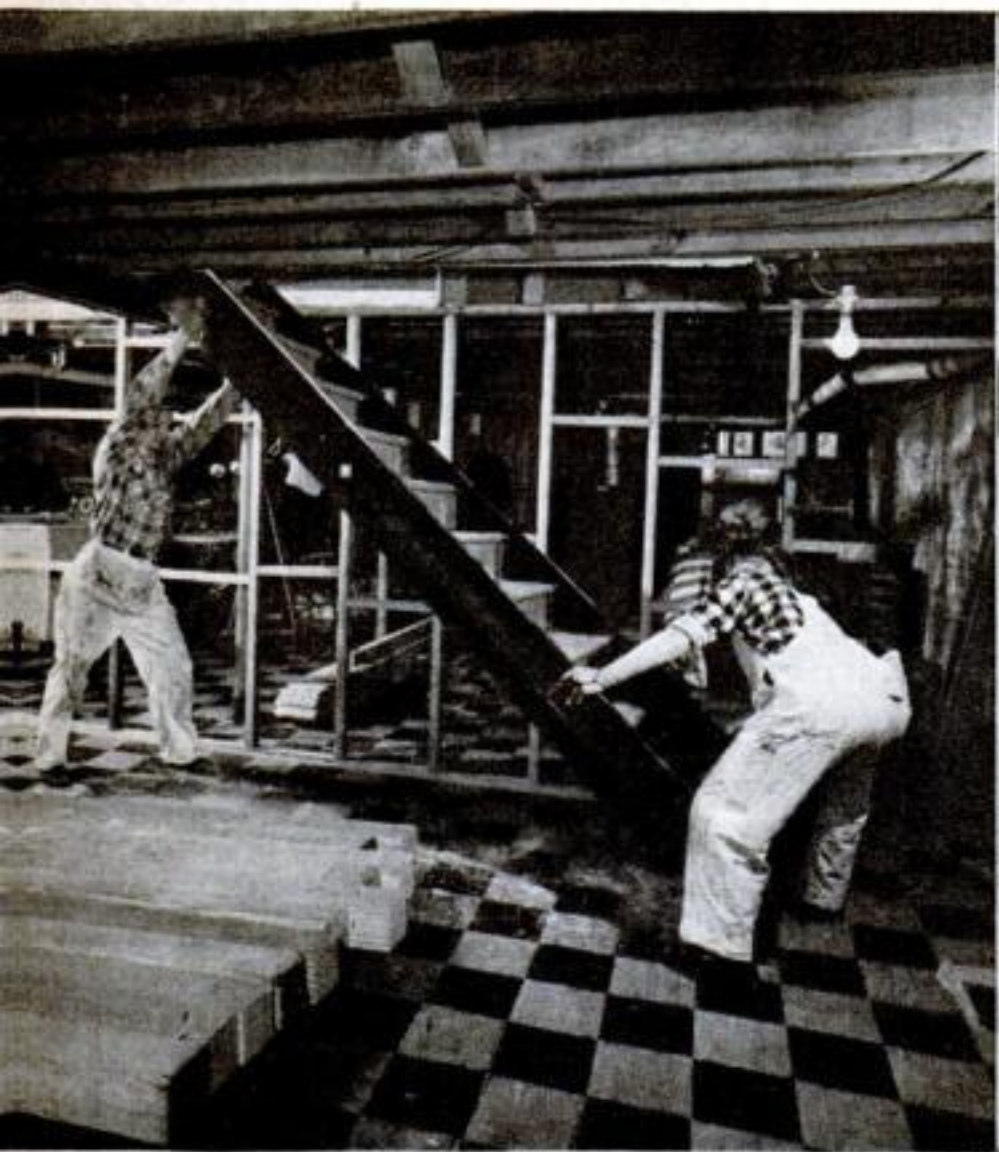


*Major steps  
in building  
the new stairs*



**1 PARTITION FRAMING** will support one side of new stairway. At this end, treads will rest on horizontal stretchers nailed in pairs between studs. The old stairs are still in place here.

**2 THREE-BY-THREE POSTS** at the open side are anchored to the concrete floor with steel pins. Here, the posts are being plumbed and then nailed temporarily to the joist overhead.



**5 OLD STAIRWAY** finally comes out—but not until all structural parts of the new one are cut. This prevents any inconvenience while work is in progress in a one-entry basement.

**6 TREADS ARE LOCKED** between the posts as their notches are slipped into place. This assembly requires installing one post, then a tread, then another post, and so on down the line.





**3 NOTCHES ARE CUT** in the front and back edges of the two-by-twelve treads to mate with corresponding notches in the posts. These are chiseled out after the saw cuts are made.



**4 POSTS ARE MARKED** for notching by resting one end of a long level on the tread-supporting stretchers in the wall framing. The best rule here: Measure twice before cutting.



**7 PINE-PANELING** joints align with vertical centerlines of three-by-three posts. Paneling is cut and butted against tread, above and below. A single notch is needed in each piece.



**8 TRIAL RUN** up and down the stairway is now in order. Finishing touches include toenailing treads to posts and gluing wood strips to free ends of the treads to combat warping.



Show : Place

# Garden Shelter

- *Use plywood to build it*
- *Has four storage stalls*
- *Has shelves outside*



- *Vary the plan to suit your needs*



*gives you a place to store everything*

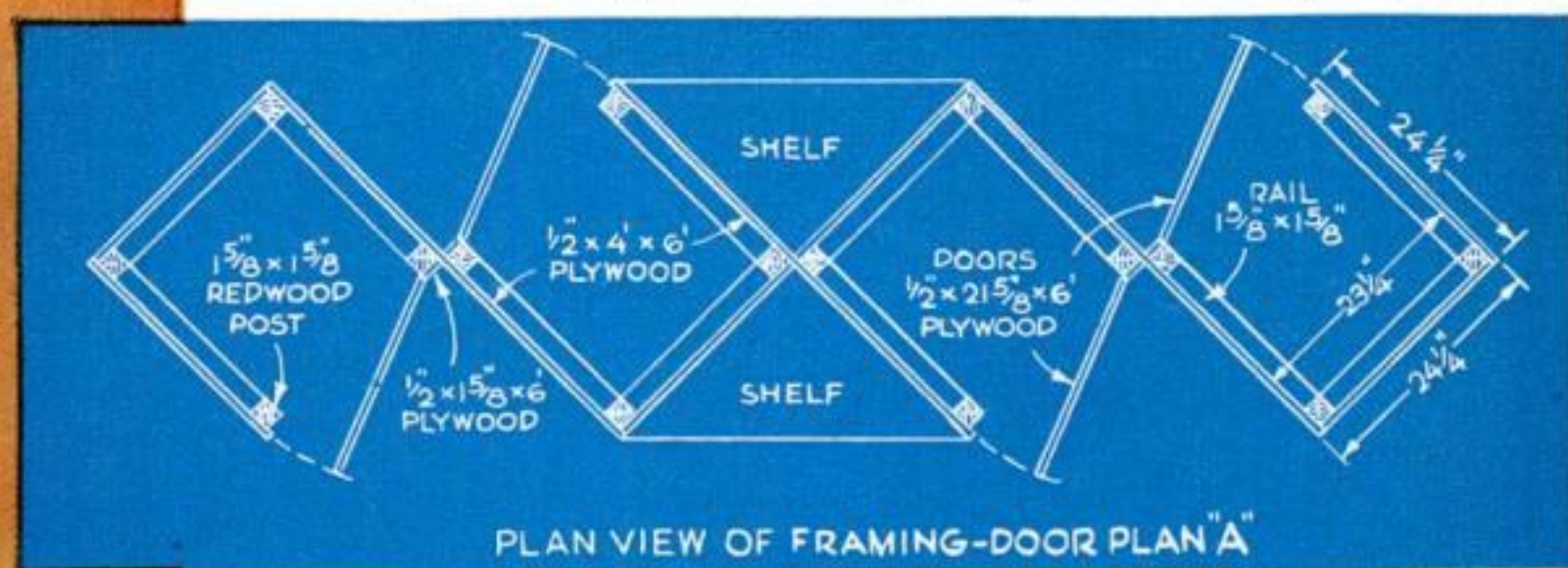
*that now clutters  
basement or garage.*

**T**HERE'S no better way to start making your home a show place than by building a shelter like this for storage of all the odds and ends that so often take up useful space elsewhere.

Surprisingly easy to build, the shelter consists of four long boxes arranged on end—with corners touching.

The design is adaptable for different uses and locations. For a free-standing structure in an open area, two storage compartments can be made accessible from one side, two from the opposite. If the shelter is to back up against a fence or a line of shrubs, all compartments can be made accessible from the outer side.

Locate shelves inside the compartments to suit your own storage needs—small garden tools and supplies, half-filled paint cans, perhaps the garbage can. Or keep one or more



of the compartments free of shelves and install hooks or hangers to support long-handled tools. A lean-to behind it will house a power mower and wheelbarrow.

The shelter also lends itself to useful storage on triangular exterior shelves, the amount depending on the door plan that you choose. When all doors are on one side, all bays on the opposite side can be used for triangular shelves.

Designed for the Douglas Fir Plywood Association by



Anshen & Allen, San Francisco architects, the main shelter makes use of three 4'-by-6' panels of  $\frac{1}{2}$ " exterior plywood without cutting—just as you buy them.

You'll see on the basic plan on the preceding page that each of these three panels serves as a continuous wall for two



adjoining compartments, locking the structure together. In all except door plan C, the three panels are arranged parallel to each other. In the latter, one panel, is placed at right angles to the other two to get the door arrangement shown. In this case the width of one panel must be reduced by sawing off a  $\frac{1}{2}$ " strip.



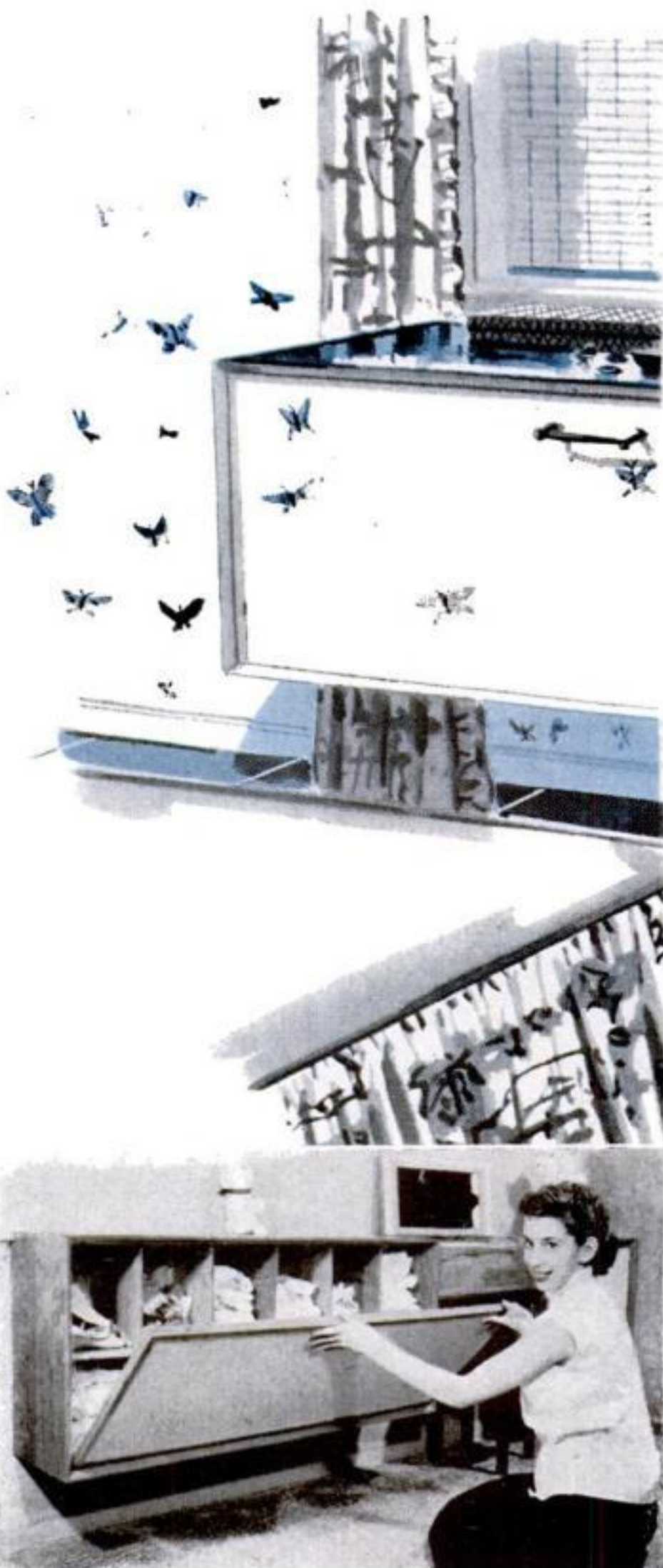
From the remaining five 4'-by-6' panels of  $\frac{1}{2}$ " plywood in the list of materials, cut two pieces  $24\frac{1}{4}$ " wide and 6' long (for the extreme end walls) and eight pieces  $23\frac{1}{4}$ " wide. Then saw strips  $1\frac{5}{8}$ " wide lengthwise from one edge of each of four of the  $23\frac{1}{4}$ " panels. Use these strips to face the two-by-two posts ( $1\frac{5}{8}$ " by  $1\frac{5}{8}$ " actual dimension) to which the doors are linged. The remaining panels  $21\frac{5}{8}$ " wide serve as doors.

It's advisable to select redwood or other rot-resistant wood for the two-by-two corner posts. If the shelter is placed on gravel or an area of bare ground, set a minimum of four two-by-four posts below frost level. Cut these off about four inches above the ground and bolt the bases of corresponding corner posts to secure the shelter from being toppled by the wind.

If you prefer to locate the shelter on a concrete slab, embed anchor bolts head down in the soft concrete, positioning

[Continued on page 250]

# Show Place Vanity

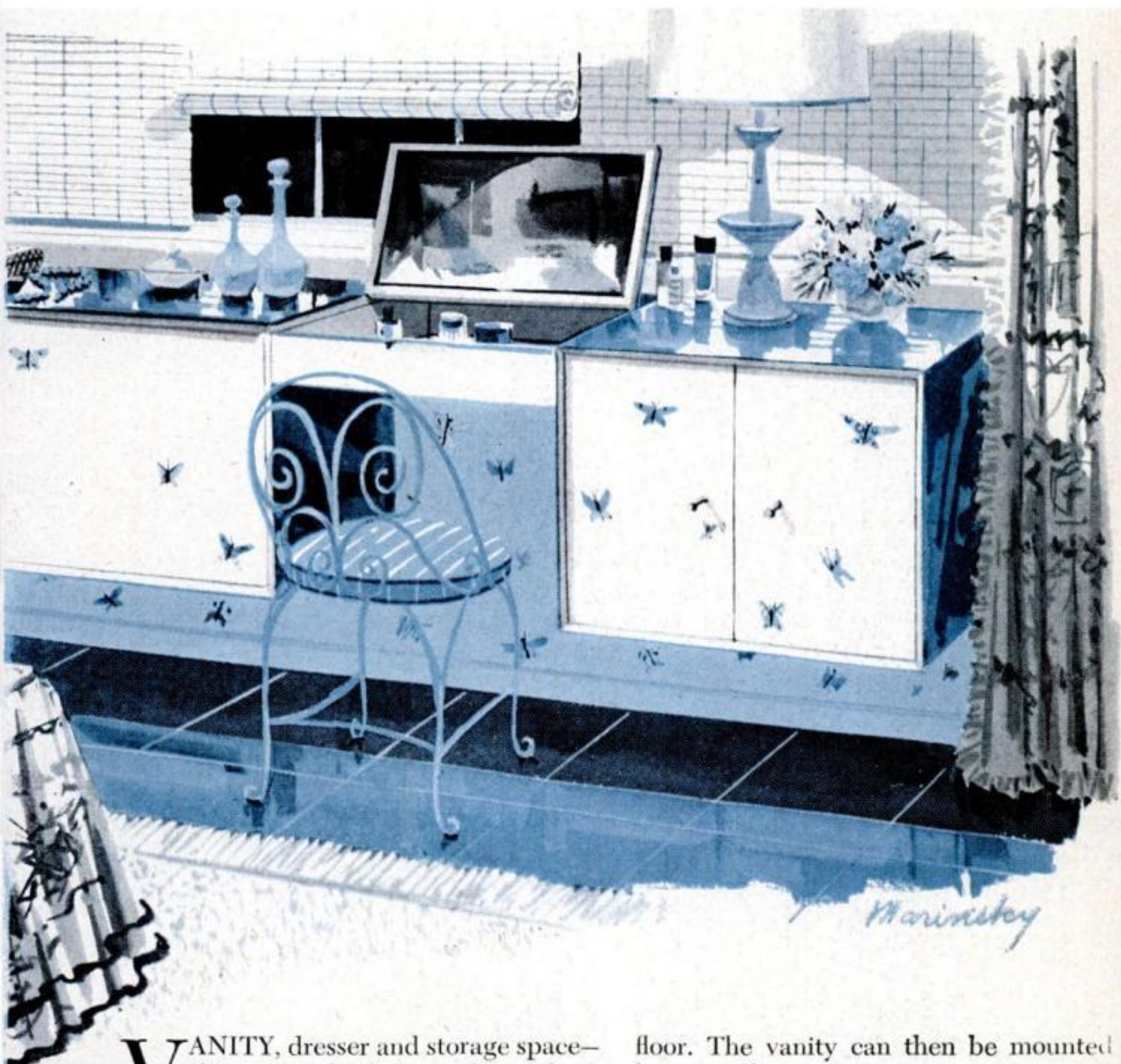


**THERE'S A WEALTH** of handy storage space just behind that big, pull-down door.



# Dresser

*for the young lady of the house.*



**V**ANITY, dresser and storage space—this unique built-in combines three essential facilities of a teen-age girl's room. Add a chair or stool and it's a safe bet that any young miss will bring in her friends to praise your handiwork.

The end cabinets should be fully assembled before being attached to the wall with the bottom edges 10" from the

floor. The vanity can then be mounted between them.

Use  $\frac{3}{4}$ " hardwood-veneer plywood for the outer parts,  $\frac{1}{2}$ " fir plywood for shelves and cabinet back,  $\frac{1}{4}$ " for dividers.

Build the cabinets with butt or rabbet joints at the corners, and rabbet the back edges to recess the backing panels. Make

*[Continued on page 252]*



Show Place

# Entry Divider

helps welcome your guests.

**D**EEPLY grooved plywood gives a ready-made custom touch to this entry divider, designed for the home that lacks an entrance hall. Grooved plywood is used in making the bench, doors and back.

Build the cabinet first, ripping the sides from 48" width of  $\frac{3}{4}$ " plywood. Cut the top the same width as the sides but

make the bottom  $\frac{5}{8}$ " narrower. Cut a rabbet  $\frac{3}{8}$ " wide and  $\frac{5}{8}$ " deep in the back edges of the top and sides.

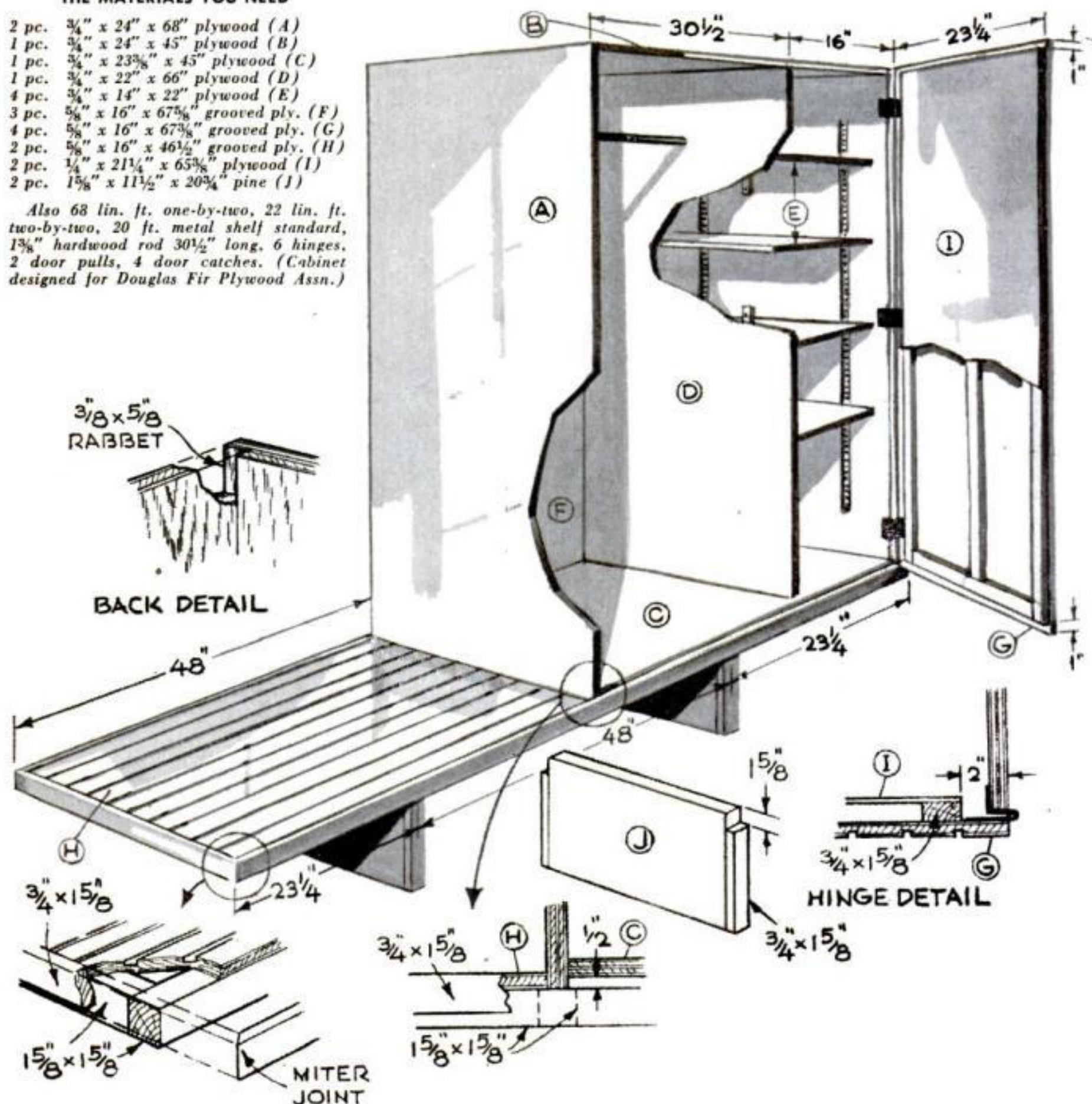
Assemble these parts and the divider (D) with glue and nails. Position the bottom (C)  $\frac{1}{2}$ " up from the lower edges of the sides and flush with the front as seen in the detail sketch.

Three 16"-wide strips of grooved

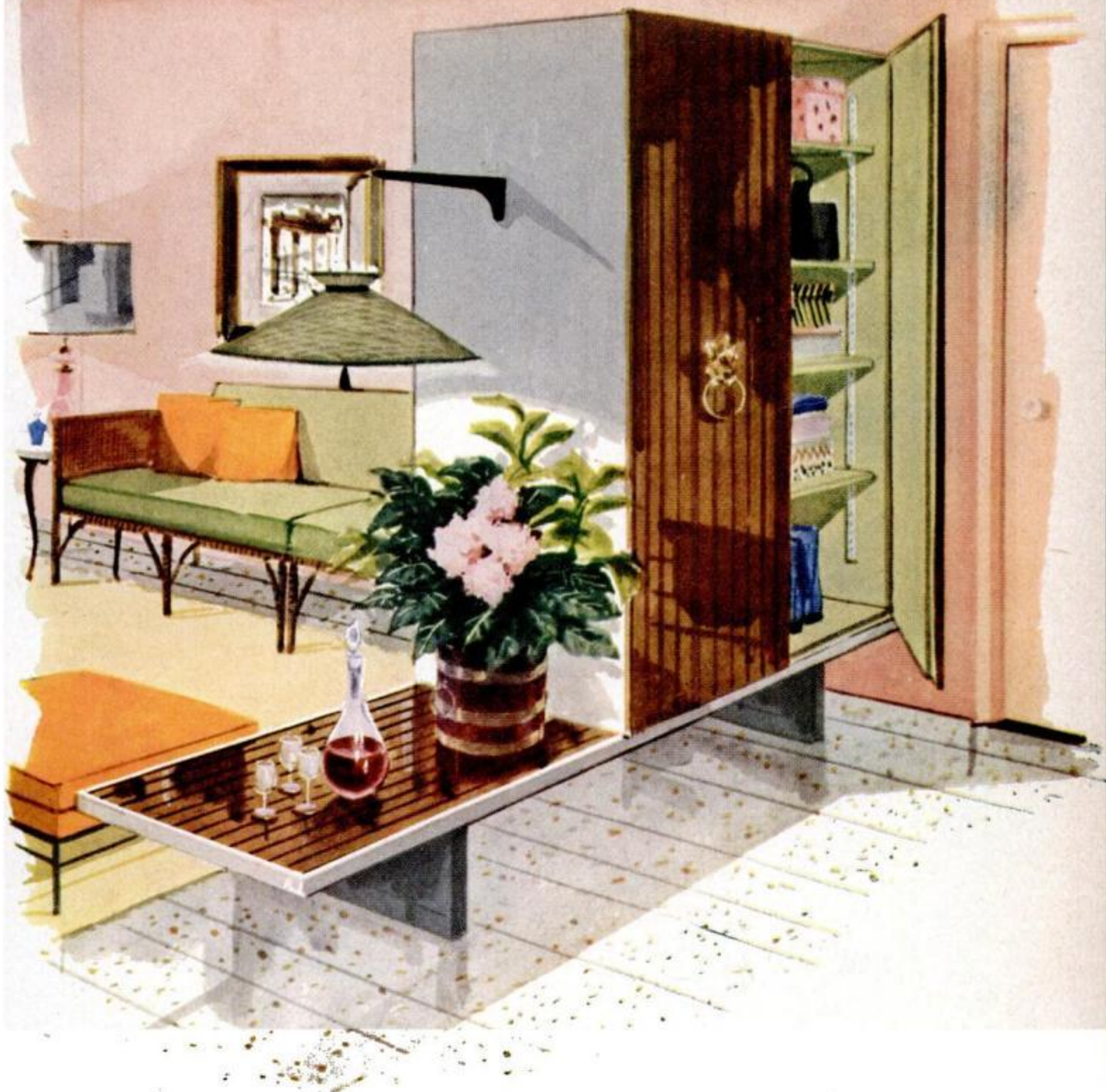
## THE MATERIALS YOU NEED

- 2 pc.  $\frac{3}{4}$ " x 24" x 68" plywood (A)
- 1 pc.  $\frac{3}{4}$ " x 24" x 45" plywood (B)
- 1 pc.  $\frac{3}{4}$ " x 23 $\frac{3}{4}$ " x 45" plywood (C)
- 1 pc.  $\frac{3}{4}$ " x 22" x 66" plywood (D)
- 4 pc.  $\frac{3}{4}$ " x 14" x 22" plywood (E)
- 3 pc.  $\frac{5}{8}$ " x 16" x 67 $\frac{3}{8}$ " grooved ply. (F)
- 4 pc.  $\frac{5}{8}$ " x 16" x 67 $\frac{3}{8}$ " grooved ply. (G)
- 2 pc.  $\frac{5}{8}$ " x 16" x 46 $\frac{1}{2}$ " grooved ply. (H)
- 2 pc.  $\frac{1}{4}$ " x 21 $\frac{1}{4}$ " x 65 $\frac{3}{8}$ " plywood (I)
- 2 pc. 1 $\frac{5}{8}$ " x 11 $\frac{1}{2}$ " x 20 $\frac{3}{4}$ " pine (J)

Also 68 lin. ft. one-by-two, 22 lin. ft. two-by-two, 20 ft. metal shelf standard, 1 $\frac{3}{8}$ " hardwood rod 30 $\frac{1}{2}$ " long, 6 hinges, 2 door pulls, 4 door catches. (Cabinet designed for Douglas Fir Plywood Assn.)







plywood (Texture One-Eleven) with grooves 2" apart are needed for the cabinet back, the material being mounted with the grooves running vertically.

Cut all three strips to a 67 $\frac{3}{4}$ " length. Place these flat on the floor with the shiplap edges together to determine the total panel width needed. Remove the lap from the outer edge of one outer strip and rip enough off the other strip so that the panel fits within back-edge rabbets.

Use two 67 $\frac{3}{4}$ " strips of the grooved plywood to make each door, cutting equal

amounts off each outer edge to give a total width of 23 $\frac{1}{4}$ ". This places the shiplap joint over the centered vertical member of the  $\frac{3}{4}$ "-by-1 $\frac{3}{8}$ " door framing. Space this frame 1" from the top and bottom of the door, 2" from the hinging edge and flush with the other. Cover the frame inside with  $\frac{1}{4}$ " plywood. Mount each door with three offset hinges.

The bench frame consists of two 93" lengths of two-by-two (1 $\frac{5}{8}$ " by 1 $\frac{5}{8}$ ") with spacers between to make a frame 24"

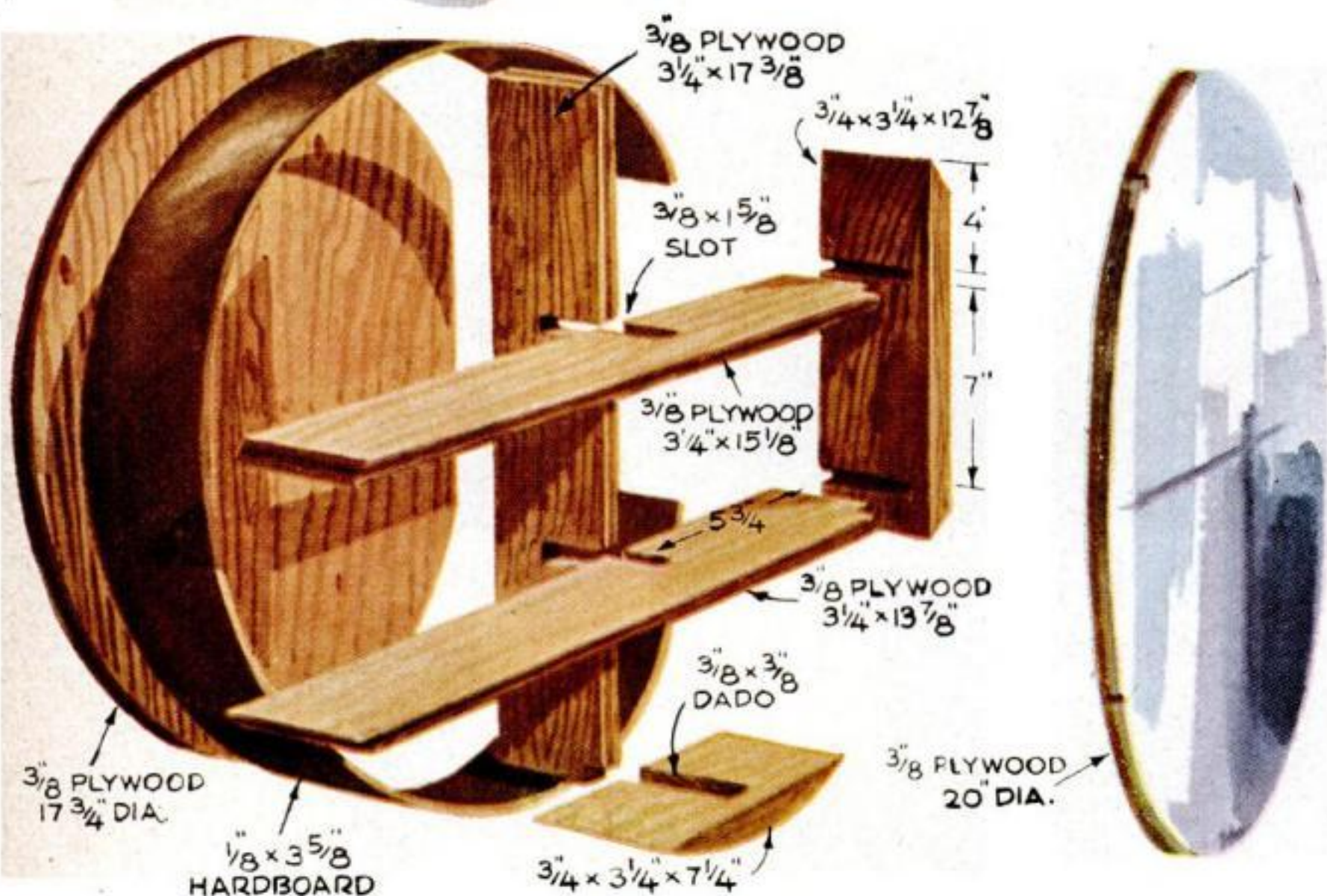
*[Continued on page 264]*



Show : Place

# Bathroom Cabinet

*is a handsome and useful circle on the wall.*



**H**ARDBOARD bends easily to form the curved outer wall of this unusual cabinet. The cabinet can be built so that the plywood door with the round mirror cemented to it opens at either side.

Notch the main shelves and the vertical divider for interlocking joints. At one end, these shelves slip into blind dados in the  $\frac{3}{8}$ "-thick hinge strip. The bottom of the divider also goes into a dado, in the bottom shelf. Shape the lower edge of this shelf to the same arc as the cabinet back—a  $17\frac{3}{4}$ " disk of  $\frac{3}{8}$ " plywood with a

slice taken off one side to match the hinge strip. Glue and nail all parts together. Then cut or sand the ends of the hinge strip and the free ends of the main shelves and divider to match the back.

A 50" strip of  $\frac{1}{8}$ " hardboard,  $3\frac{5}{8}$ " wide, for the outer wall, is soaked in water for about an hour. With the smooth side out, nail one end to a beveled end of the hinge strip and bend the hardboard gradually around the back disk, nailing as you go. Cut off the excess.

Clip or contact-cement a 20"-diameter, full-circle mirror to the door.





Show Place

# Bathroom Rack

*holds a supply of towels... serves as a divider, too.*

**E**VEN in the smallest bathroom, you can usually find room for this handy modern rack for towels and accessories. It occupies what otherwise would be open space between the floor and ceiling.

Build it of one-by-six wood and 1" dowels, suiting the width to the width of the tub. One-by-sixes give a convenient shelf depth for storing extra towels and toiletries without occupying too much floor space at the end of the tub.

After cutting the two uprights to fit snugly between floor and ceiling, clamp

one flat on top of the other and mark positions for the towel-rod holes. Locate three or more rods directly above each other as shown. Or stagger them, some to the right and some to the left, to give the rack a greater capacity by permitting towels to overlap.

With the two uprights still firmly clamped together, drill 1" towel-rod holes through the top board and partly through the one underneath. Use the latter board, with the blind holes facing in, as the outer upright. This locks the rods between the uprights, gives a smooth outer surface.

SEPTEMBER 1956 III

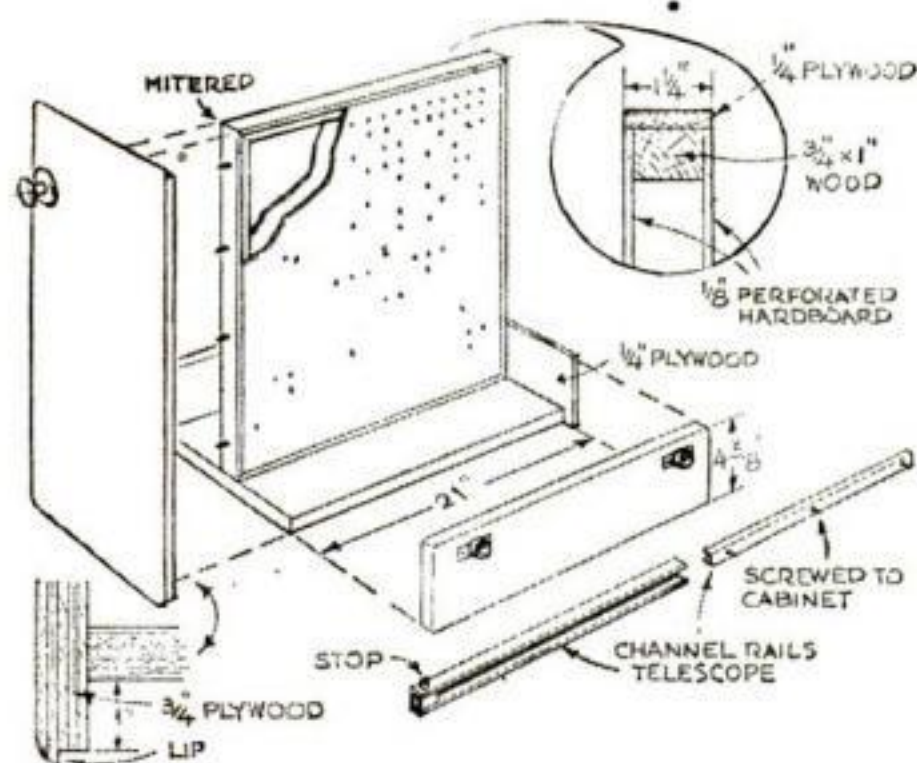




*How you can  
add a Show Place*

# Pan Rack

*to your present kitchen.*



THE beauty of this useful built-in is that you can add it to an existing cabinet, building it to fit the available space. The rack pulls out easily on ball-bearing rollers riding on telescoping rails. Cut the  $\frac{3}{4}$ " plywood door to suit the opening. Make the height of the perforated-hardboard rack 2" less than the door height. A 21" front-to-back depth will suit most cabinets. Boards on either side form a shallow bin for loose lids.



.....  
Show Place

# Card Table Compartment

*and plate rack  
is a distinctive built-in  
for any room*

**K**ITCHEN, dining room, living room, game room—place this simple built-in where you wish. It always will be a handsome addition to your home. Two standard card tables can be stored in the base, prize plates and knickknacks on the shelves.

For a built-in look, surround the cabinet with a baseboard the same width as the one in the rest of the room. Remove the existing baseboard if possible. Otherwise, use filler strips behind the cabinet.

Block up the  $\frac{3}{4}$ "-by- $7\frac{3}{4}$ "-by-36" cabinet floor so that its upper surface is even with the top of the baseboard. Notch the back corners of the floorboard for  $\frac{3}{4}$ "-by-

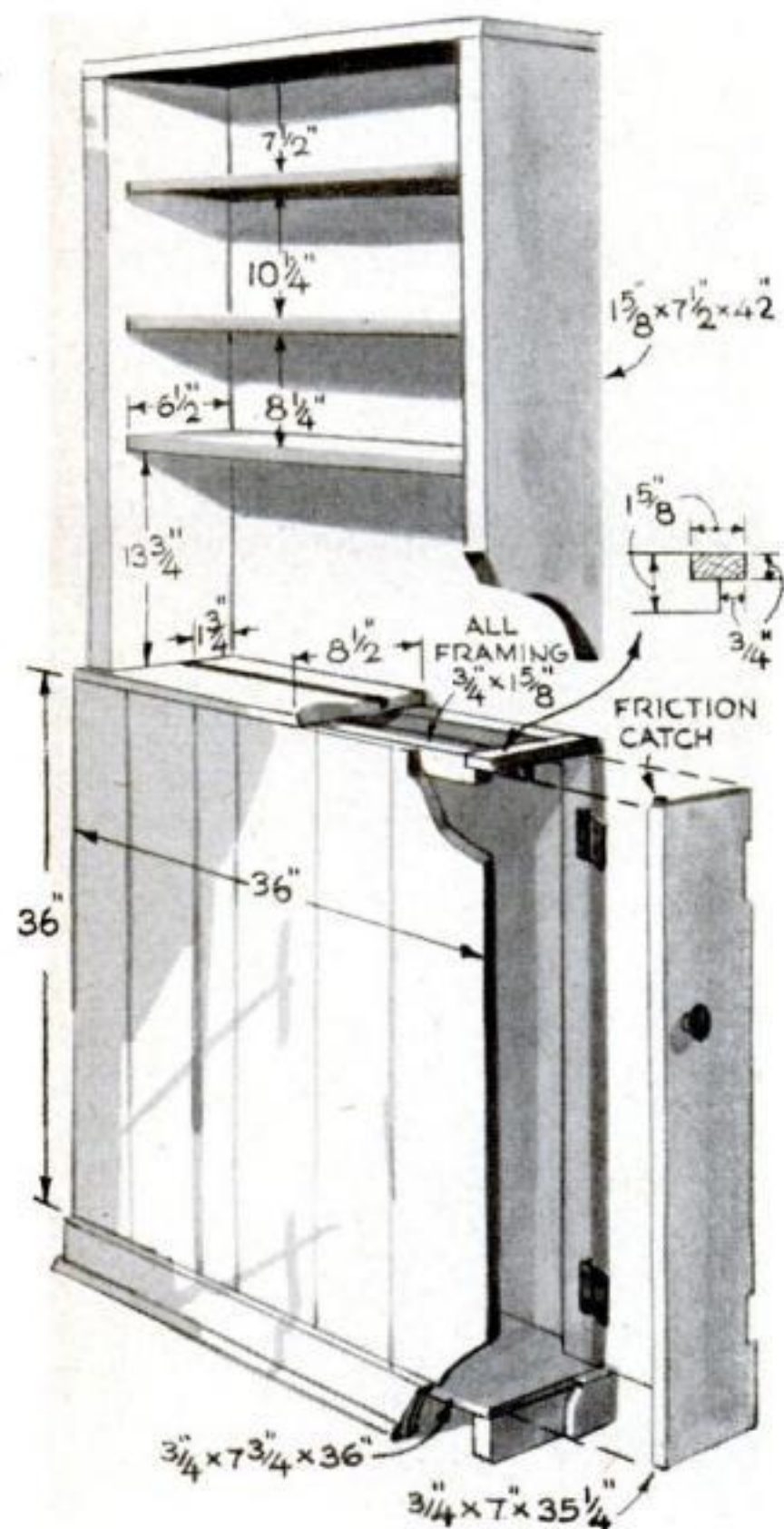




1½"-by-36" frame uprights, one of which holds the door hinges.

Nail the floor blocking to the room floor and the cabinet floor to the blocking. Cut and fit the paneling pieces but do not put all of them into place until the upper shelf unit has been assembled and attached to the base by screws run up through the frame.

Use two-by-eights (1½" by 7½" actual) for the uprights, one-by-nines for the



bottom shelf and the top, one-by-sevens for the intermediate shelves. Rout a ¼"-by-¼" groove 1¼" from the back edge of each shelf to hold plates, or tack on strips of ¼" quarter-round if you prefer.

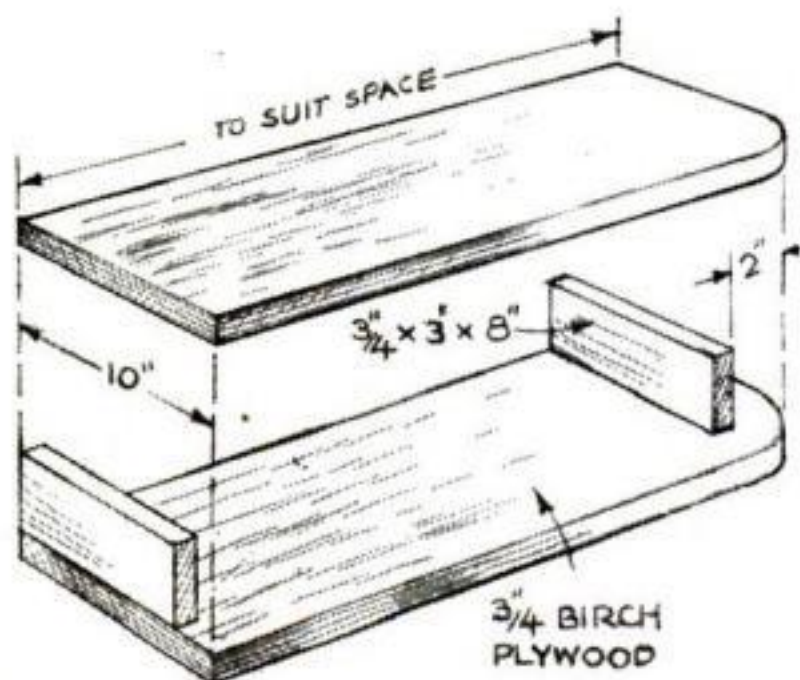
Secure the unit to the wall by angling screws up through the back edge of an upper shelf into the studs.

## One of these : Show : Place



### For a corner

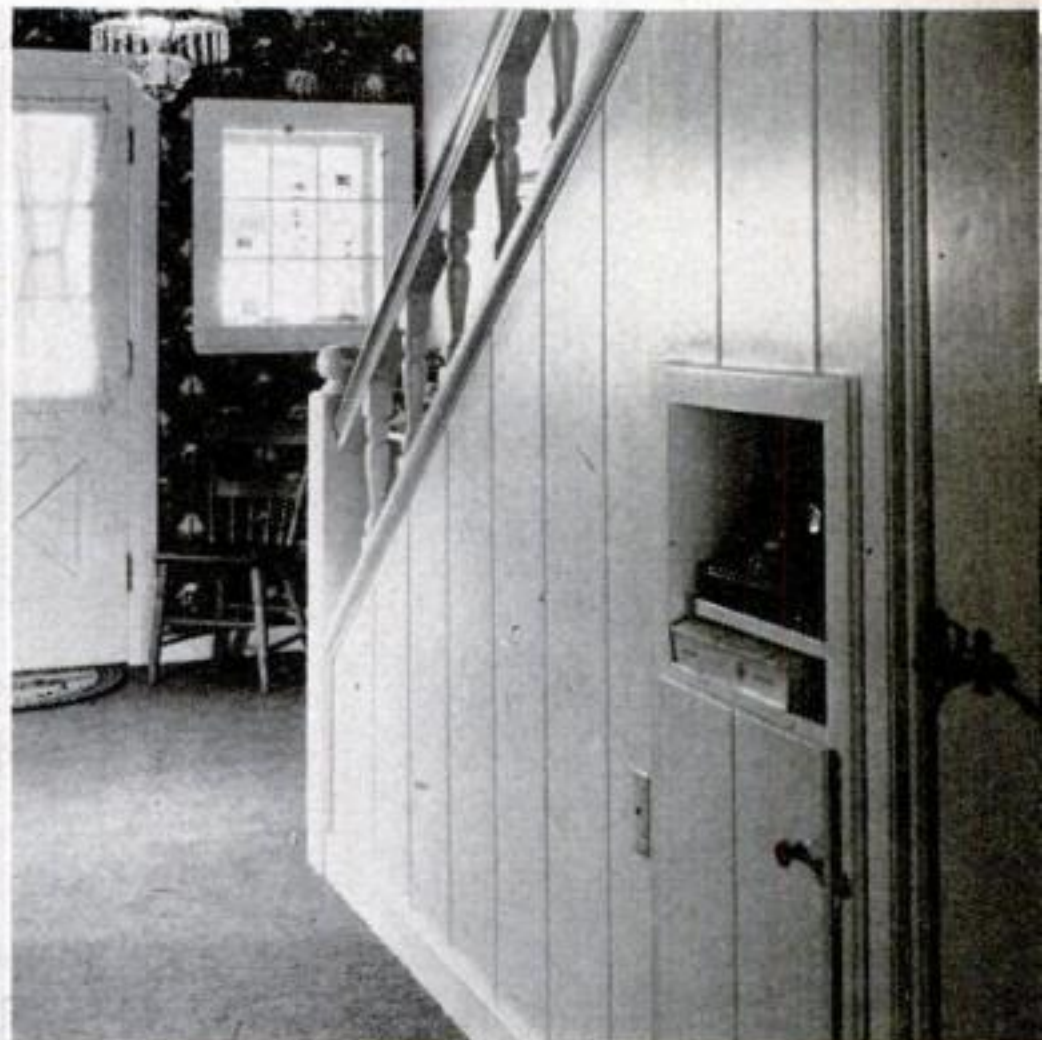
POSITION two spacer blocks between two 10"-wide strips of ¾" birch plywood and nail the shelves to them—or assemble with glue. Apply matching wood-veneer tape to the exposed edges. Using angle irons, mount the unit at comfortable sitting height.





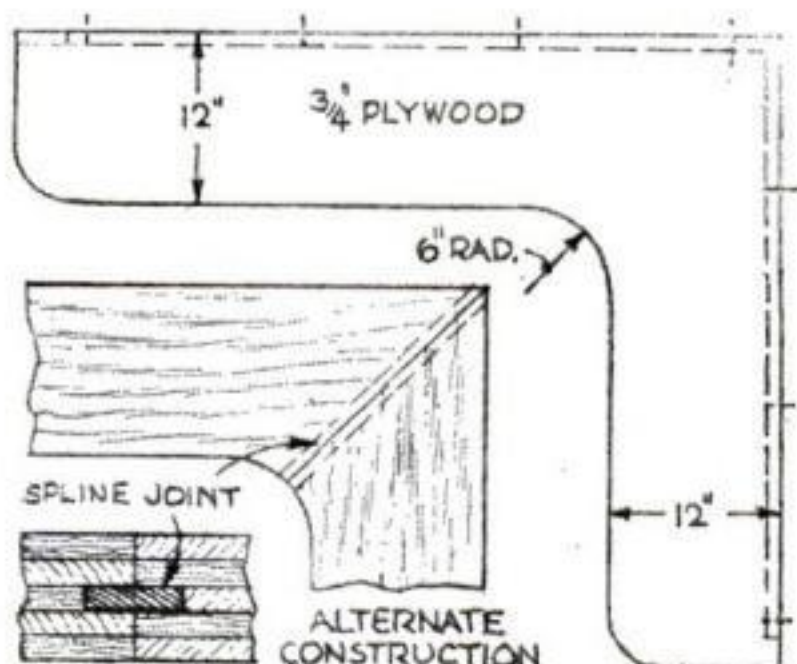
# Phone Built-ins

*will look just right in your home.*



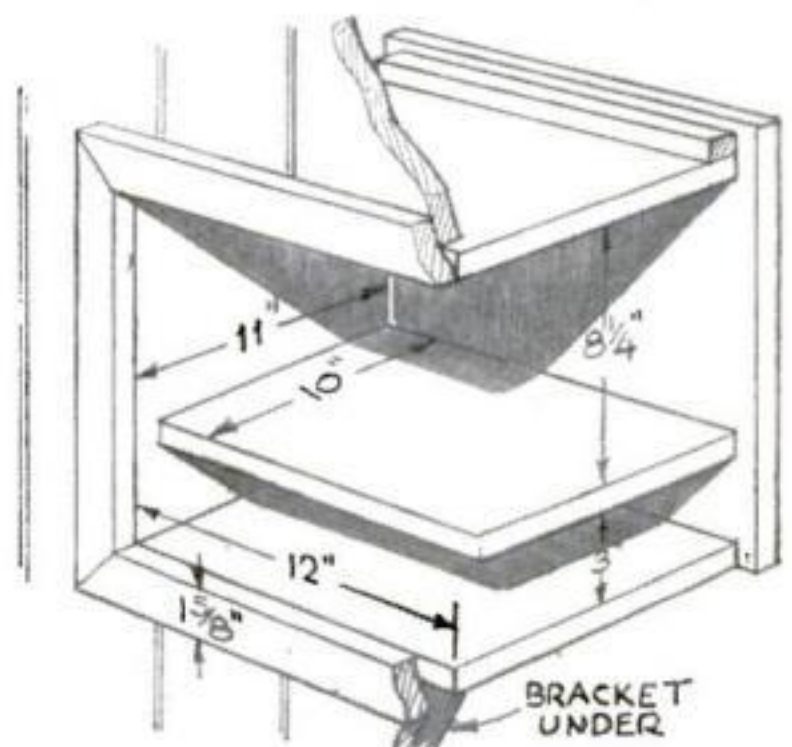
## *For a kitchen*

SAW an L-shaped shelf from a panel of  $\frac{3}{4}$ " plywood and bracket it into a corner. This is particularly good where you want to avoid obstructing a passageway. To do the job with less waste of wood, make the shelf of two pieces, splining them at the corner.



## *For a hallway*

INSERT this traditional box niche into a hole cut through the wall under a stairway or into a closet. Build the box of  $\frac{3}{4}$ " plywood or one-inch stock. Support it with brackets placed underneath. Frame it around the outside with mitered strips of one-by-twos.





$\vdots$  are combined in this

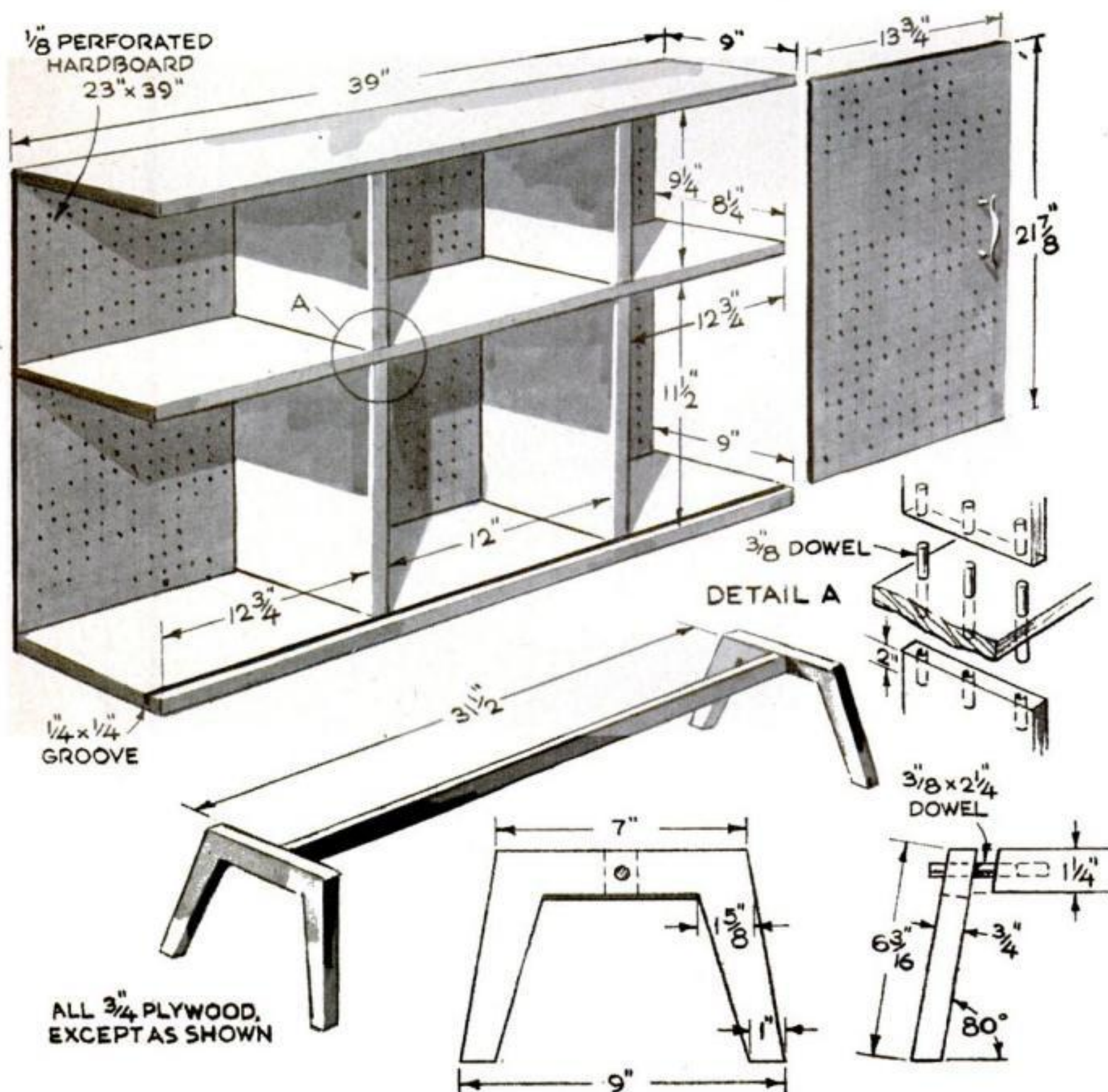
*Show : Place*

# Bookcase

**P**ERFORATED hardboard painted a bright color complements the sun-flecked beauty of natural-finish birch plywood in this handsome bookcase.

The list of materials shows how to cut the pieces. A 3'-by-4' panel will yield all of the plywood parts. You'll need a 4'-by-4' panel of  $\frac{1}{8}$ " perforated hardboard.

A ¼"-by-¼" groove must be cut in the top and bottom shelves for the sliding door. All of the plywood parts are joined with blind dowels, and the holes for these must be drilled carefully. Use 12 of the short dowels to join the dividers to the top and bottom shelves, two for the leg assembly. Use the long dowels to secure the middle shelf (Detail A).







Cut the legs from the two  $6\frac{1}{2}$ "-by-9" pieces of plywood, shaping them as the drawing shows. Bevel the ends of the  $1\frac{1}{4}$ "-by-32" leg stretcher to 80 degrees so that the legs will cant outward. Bevel the top edges of the legs and the bottoms of the feet to match. If you would rather avoid the careful fitting required here, use ready-made wood or metal legs.

Sand exposed edges of the plywood lightly, taking care not to round the corners. Apply  $\frac{3}{4}$ " veneer tape to these edges to hide the plies. You'll need 20' of tape.

Assemble the shelves and dividers with glue and dowels. After tightening the clamps, check all of the joints to be sure they are square. Attach the leg assembly with glue and  $1\frac{1}{4}$ " wood screws, running the screws into the bottom shelf from un-

#### MATERIALS YOU WILL NEED

2 pc.	9" x 39"	$\frac{3}{4}$ " birch plywood	(shelves)
1 pc.	$8\frac{1}{4}$ " x 39"	" "	(shelf)
2 pc.	$8\frac{1}{4}$ " x $11\frac{1}{2}$ "	" "	(divider)
2 pc.	$8\frac{1}{4}$ " x $9\frac{1}{4}$ "	" "	(divider)
2 pc.	$6\frac{1}{2}$ " x 9"	" "	(legs)
1 pc.	$1\frac{1}{4}$ " x 32"	" "	(leg stretcher)
1 pc.	23" x 39"	$\frac{1}{8}$ " perf. hardboard	(back)
1 pc.	$13\frac{3}{4}$ " x $21\frac{7}{8}$ "	" "	(door)
6	$4\frac{1}{2}$ " long	$\frac{3}{8}$ " dowels	(to secure middle shelf)
14	$2\frac{1}{4}$ " long	" "	(to secure outer shelves)
		$1\frac{1}{4}$ " wood screws	(to attach leg assembly)

derneath. Counterbore the screw holes in the leg assembly  $\frac{1}{2}$ " and recess the screw heads.

Apply clear penetrating sealer to the birch, allow to dry thoroughly and smooth with fine steel wool. Apply another coat, wait about 10 minutes and then polish with a cloth damp with turpentine. Paste wax well rubbed gives a deep luster finish of surprising durability.

After painting the hardboard, attach the back with  $\frac{3}{8}$ " wood screws. Then screw a bronze handle to the door and the job's done.

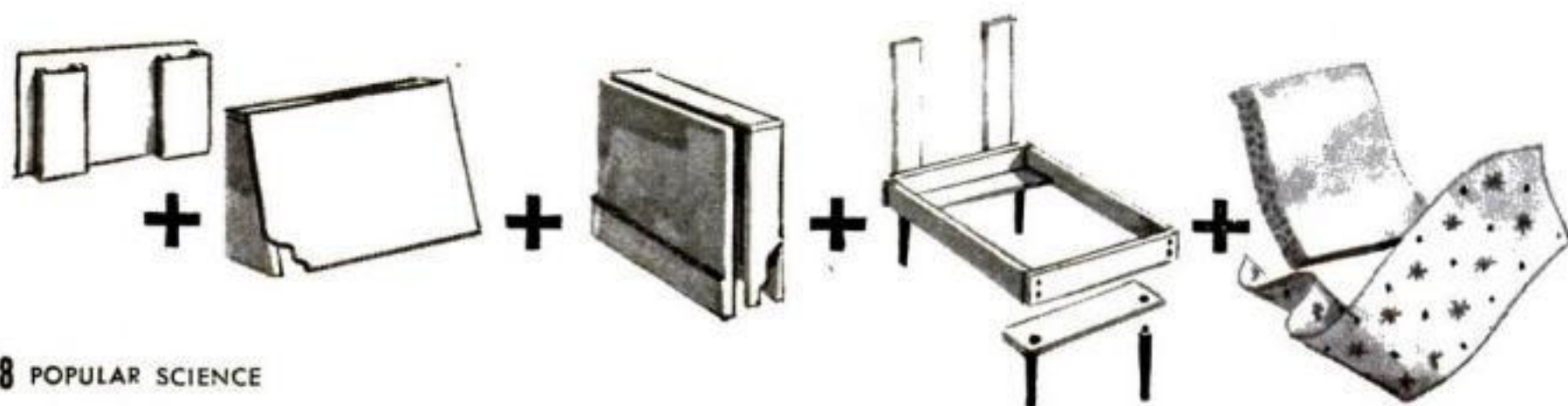




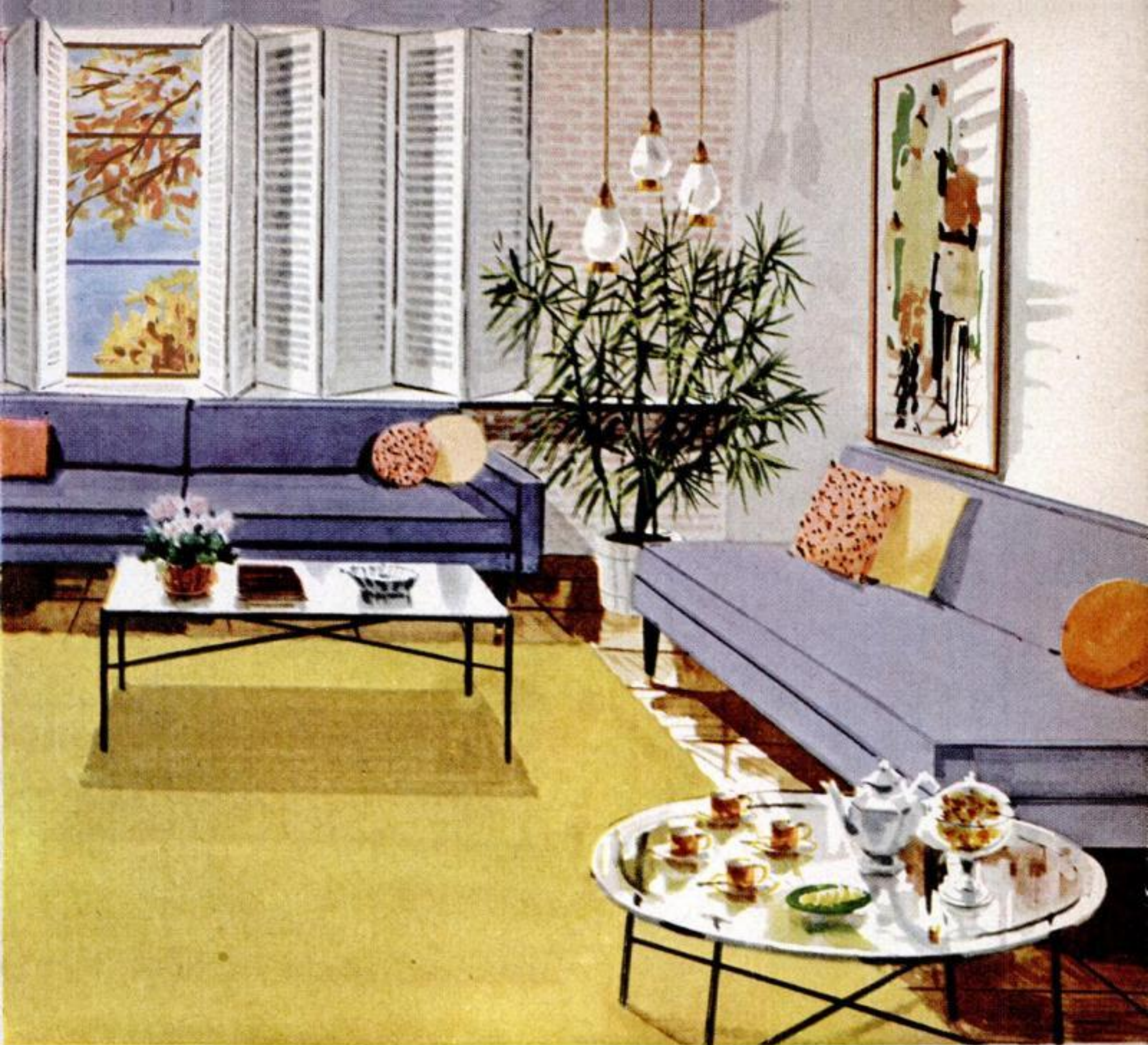
Show Place

# Furniture

*for young moderns on a budget.  
Here's how to build it.*







SIT down in that easy chair. Stretch out on the armless sofa. Stroll over and try the sectional couch or the love seat adjoining the corner table.

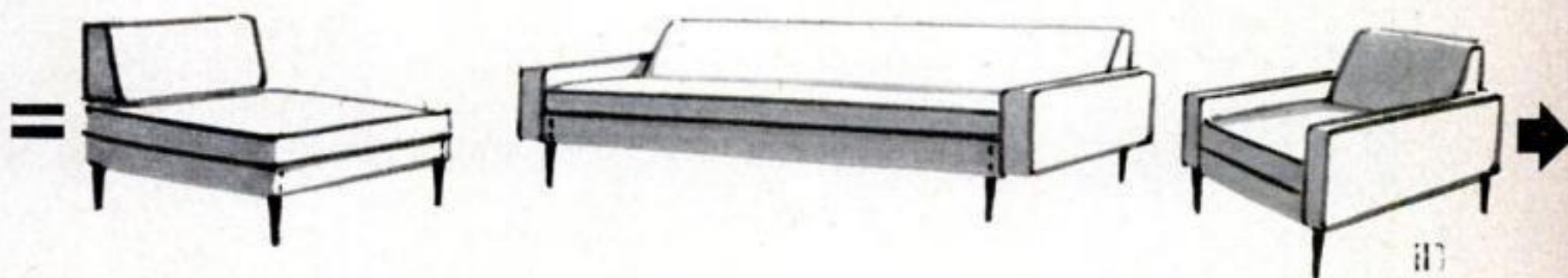
They are all comfortable.

They should be. They're generously designed for room and for angles as pleasing to the body as to the eye. And

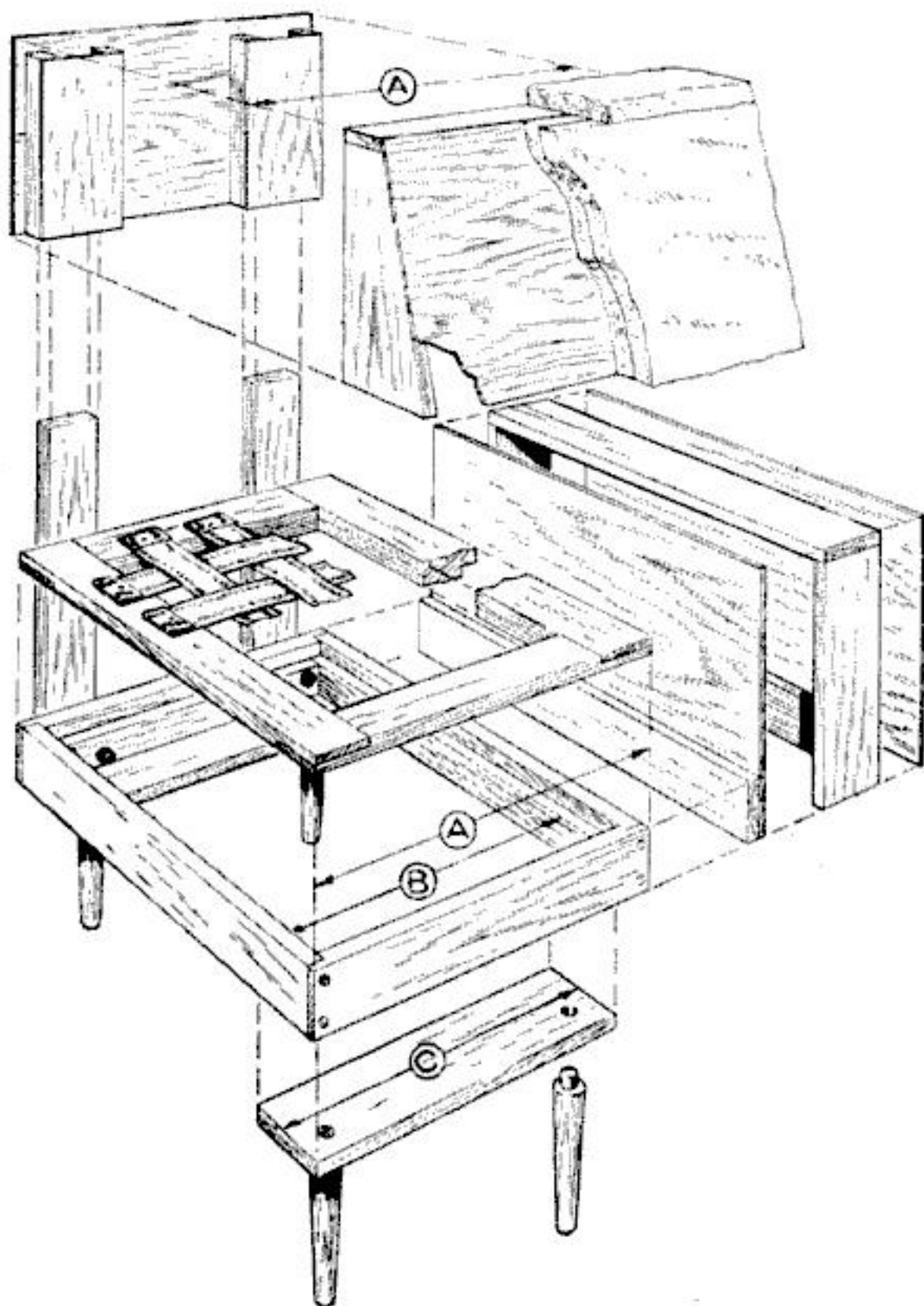
they're well padded with foam rubber.

As you can see, there's a lot of family resemblance among the pieces. That's because, structurally, they are alike except for length and the presence or absence of arms.

Three lengths—21", 36" and 72"—and the option of two, one or no arms make







**ONE BASIC PLAN** enables you to build all the furniture you see on the preceding two pages. Front-to-back and vertical dimensions are the same in all cases. Just vary dimensions represented by A, B and C on the drawing.

Chair—A, 21"; B, 17 $\frac{3}{8}$ "; C, 18 $\frac{7}{8}$ ".

Sofa—A, 72"; B, 68 $\frac{3}{8}$ "; C, 28 $\frac{7}{8}$ ".

Love seat or sectional couch—A, 36"; B, 32 $\frac{3}{8}$ "; C, 28 $\frac{7}{8}$ ".

For all pieces except the chair, leg assemblies are placed from front to back across ends instead of crosswise, as shown for the chair.

Webbing is crisscrossed on seat frame to support cushions, and back and arms are padded with 1" or more of foam rubber under the fabric.

Backs are supported by plywood sleeves that slip down over hardwood uprights bolted to the base—and can be lifted off to lighten the load when you move the furniture.

Arms are easily removed, too, in case a room plan calls for an armless or one-armed chair, or love seat.

this a remarkably versatile line of living-room furniture. For instance, you can build the sofa with arms or without. And you can slip off the back—it just lifts up—to make a guest bed.

Build two of the middle-length units and put them together (using one arm on each) for a sectional couch. Or build one and put on two arms—and you have a love seat.

For a three-piece sectional couch, build three chairs, but leave one without arms, put one arm on each of the others. Or build an armless chair and use it between two of the middle-length units.

**Construction.** The frames are a simple construction of easily worked materials— $\frac{3}{4}$ " fir plywood, 1" (actually  $\frac{3}{4}$ ") softwood such as pine, and hardwood 1  $\frac{1}{16}$ " thick.

For strength, use hardwood to make

the outer seat frames and the uprights that support the back.

Any available softwood will do for the remaining frame parts. To keep ripping to a minimum, standard softwood widths are specified where possible.

You may find that any of these units are more comfortable with the back legs cut off shorter to provide some pitch. By all means treat them this way—unless the sofa is to be used for sleeping.

You might also like to substitute wrought-iron legs for wooden ones. The furniture is designed to take manufactured legs, either wood or metal, as well as lathe-turned ones.

**Upholstering.** The back and arms are padded with foam rubber 1" thick. For the chair you can use a standard-size rubber cushion that comes in a 4 $\frac{1}{2}$ " thick-

[Continued on page 252]



**Police use new weapons in**

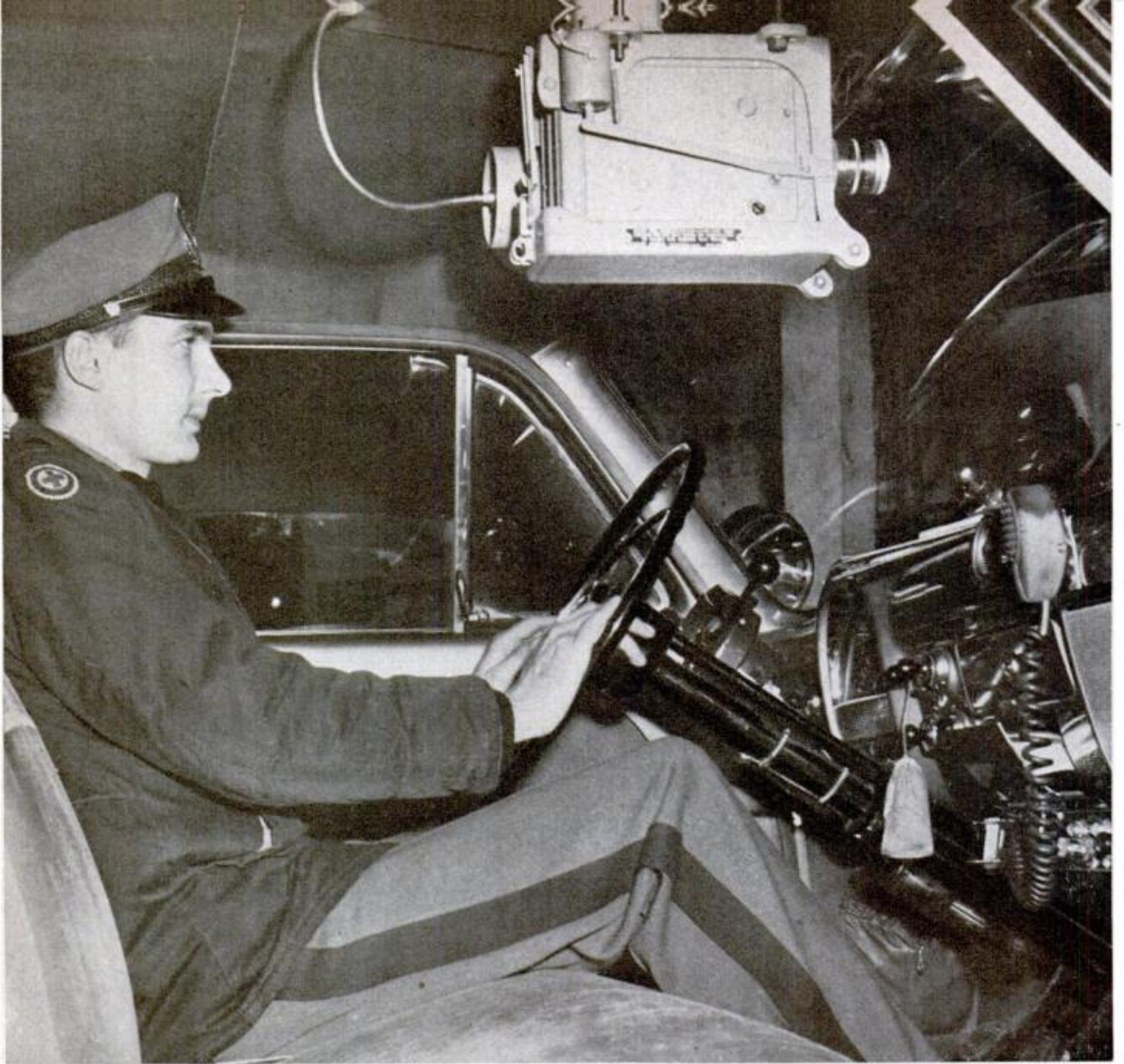
# The War to Save Lives



**Washington State has cut highway deaths 50 percent in three years by spying on traffic violators from the air, catching speeders with radar and telltale cameras, trapping drunks with surprise roadblocks.**

SEPTEMBER 1956 |21





**NO HOLDS ARE BARRED** in Washington's battle to prevent motorists from killing themselves and others. Led by a determined governor and

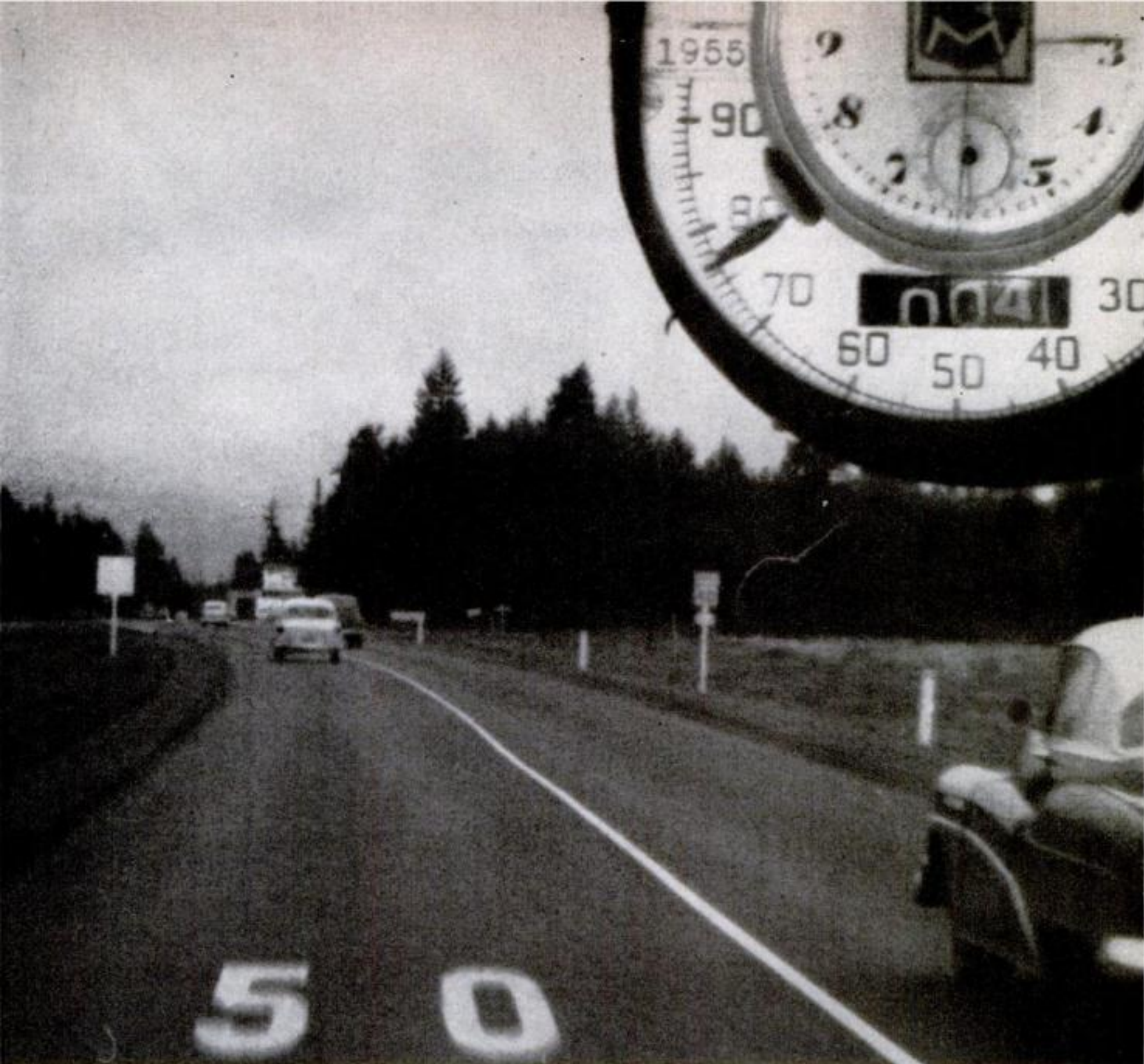
backed by an aroused public, state patrolmen use the Trafficamera car (above) and many other modern devices to nab reckless drivers.



**TO PREVENT MOTORTHANASIA**, "the putting to death of a person by the use of a motor vehicle," Washington state patrolmen often resort to sur-

prise roadblocks. Thus they weed out drunken drivers, defective vehicles and unlicensed drivers before they can become involved in accidents.





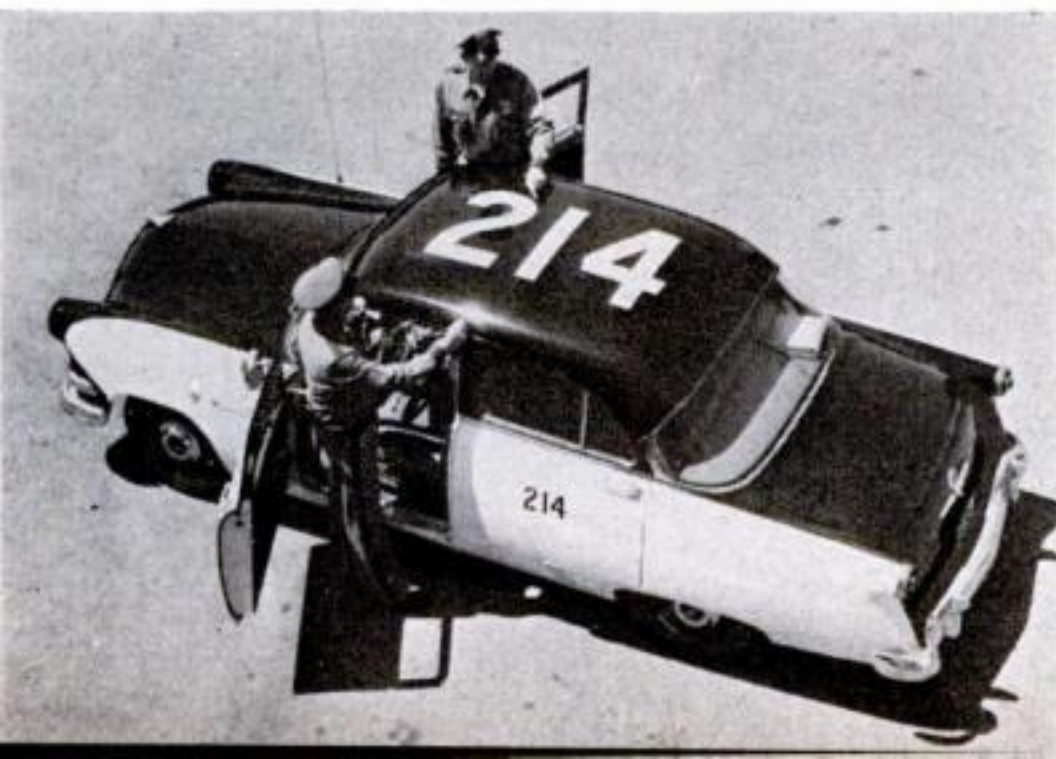
**CAUGHT RED-HANDED** by the Trafficamera, a speeder is photographed going 76 m.p.h. in a well-marked 50-m.p.h. zone. Time and date are

recorded simultaneously with the scene and speedometer reading. Photos also aid Washington's intensive driver-education campaign.

## WILL ENFORCEMENT HALT THESE SHOCKING LABOR DAY

### TRAFFIC DEATHS?

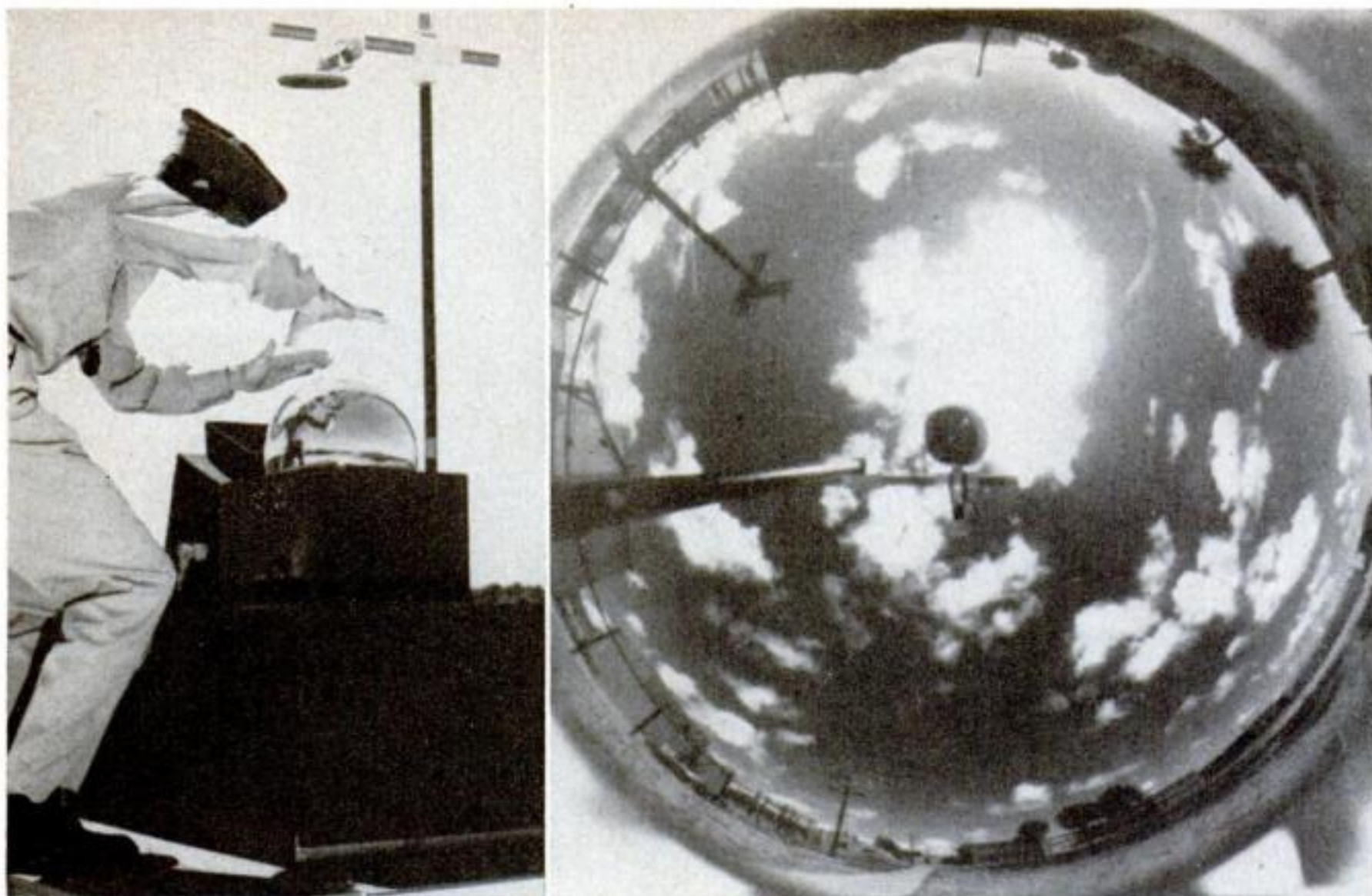
**AIDING AERIAL SPOTTERS**, who want to radio the nearest state cop when they see a driver violating a traffic law, all Washington patrol cars wear identifying numbers on their roofs.



<b>1950</b> .....	<b>389</b>
<b>1951</b> .....	<b>461</b>
<b>1952</b> .....	<b>432</b>
<b>1953</b> .....	<b>405</b>
<b>1954</b> .....	<b>364</b>
<b>1955</b> .....	<b>438</b>
<b>1956</b> .....	<b>???</b>

*National Safety Council figures,  
covering the Labor Day weekend.*





### Crystal Ball Shows Air Force Cameramen Full View of Sky

THEY shoot pictures with a crystal ball now at the AF Missile Test Center in Florida. A camera (left background in the setup above) snaps the mirror at top which reflects the sky as seen in

the ball—and it comes up with a horizon-bounded view like that at right. Shots at 15-minute intervals help determine what filters and settings should be used in the photographing of missiles in flight.



### Army's Mobile Photo-Mapping Lab Expands to Twice Its Size

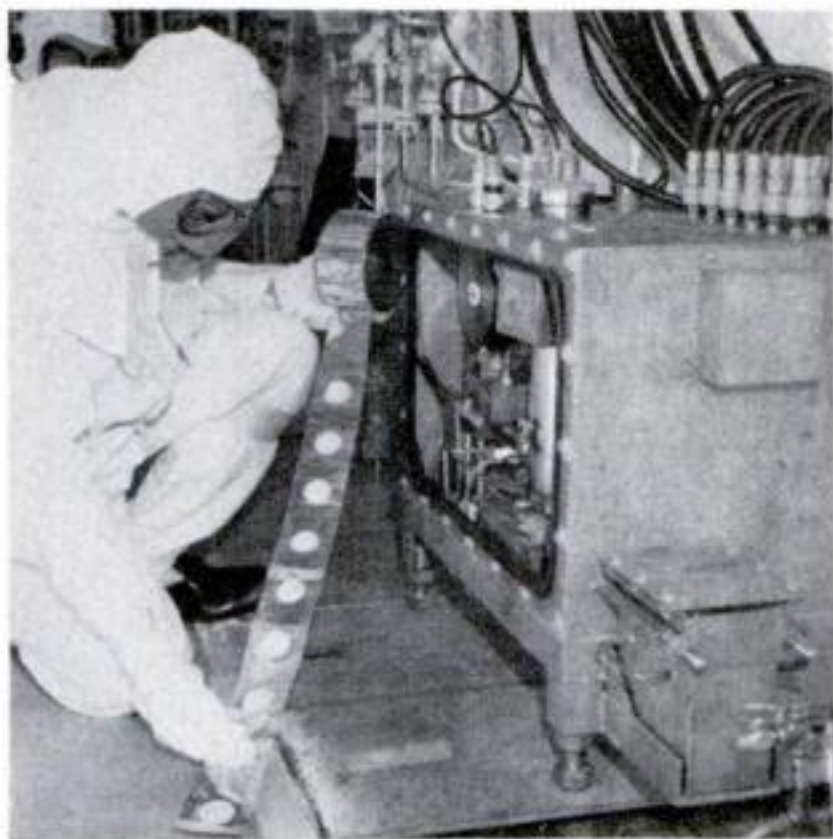
HALTED at a strategic site for photo-mapping operations, this seven-foot-wide van can be expanded to 13½ feet. In just five minutes two men can crank out its aluminum sides on outrigger beams,

swing hinged floor and roof sections into place and close the end panels. Heating and air-conditioning units are over the cab, power in a trailer. Army Engineers at Fort Belvoir, Va., developed the idea.



## Atomic Suit Inflated with Conditioned Air

THE girl at the right, wearing an anti-radiation suit, is ready for her atomic job. Handling a Geiger counter and protected by the inflated plastic garment, she can detect floating radioactive particles without danger of contamination. Goodyear-made, the suit is air-conditioned for comfort.

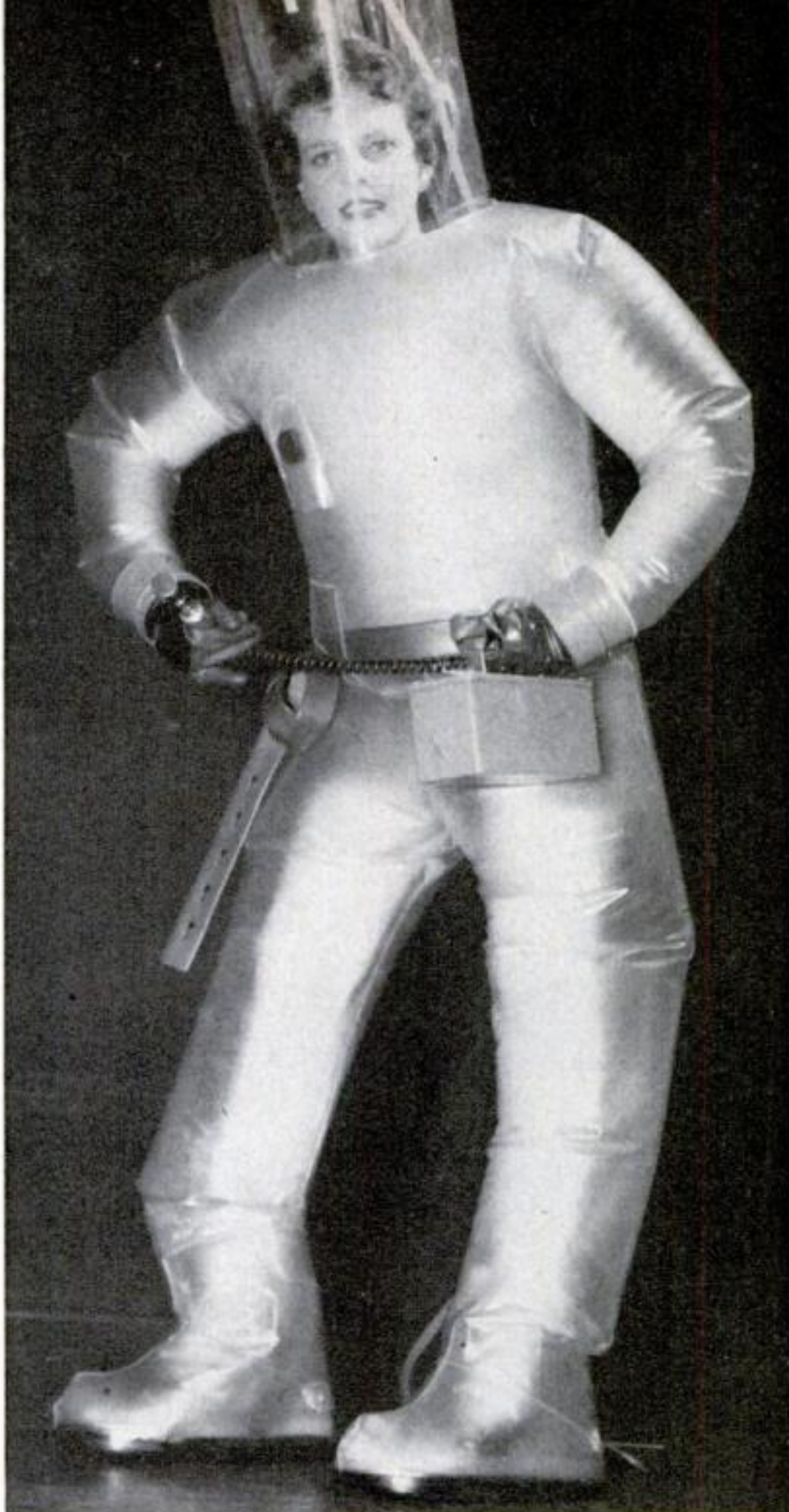


## Robot Halts Waste

WHEN waste collected by this tape shows plutonium, the machine signals control engineers at the Hanford atomic plant. Prompt "leak" plugging saves GE \$250,000 a year in lost nuclear fuel.

## Eight-Wheeled Buick Rides Road or Rails

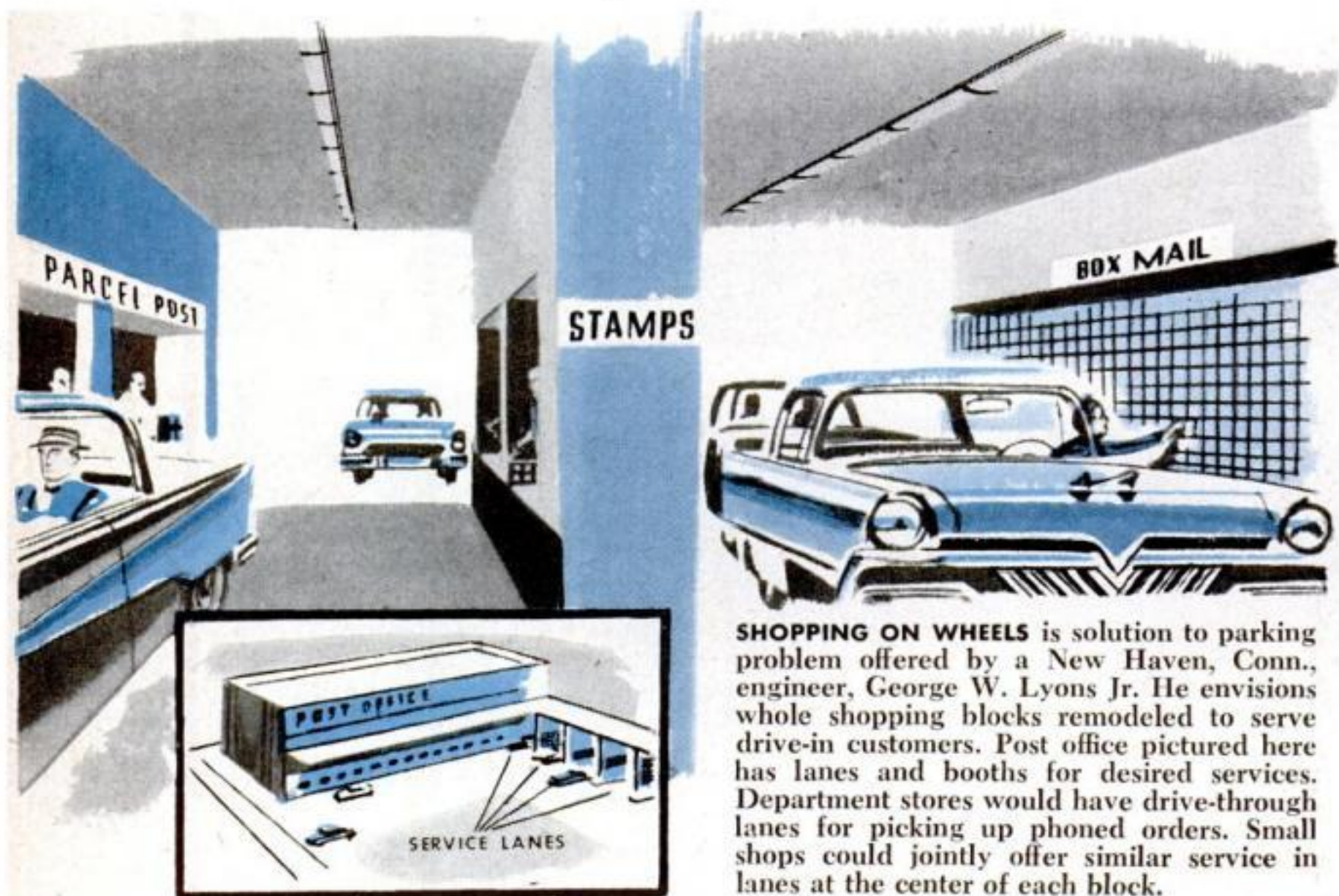
HYDRAULICALLY lowered, the flanged extra wheels fit this car for its regular inspection runs on the rails of the Burlington Railroad. Raised, they are out of the way for highway travel which saves doubling back over the track just covered. They provide no traction, just keep the tires hugging the rails.





# What's Coming Next?

*Here's a glimpse of some striking ideas for tomorrow's bigger and better world, as seen in an over-the-shoulder look at the drawing boards of the engineers and scientists who are planning it.*



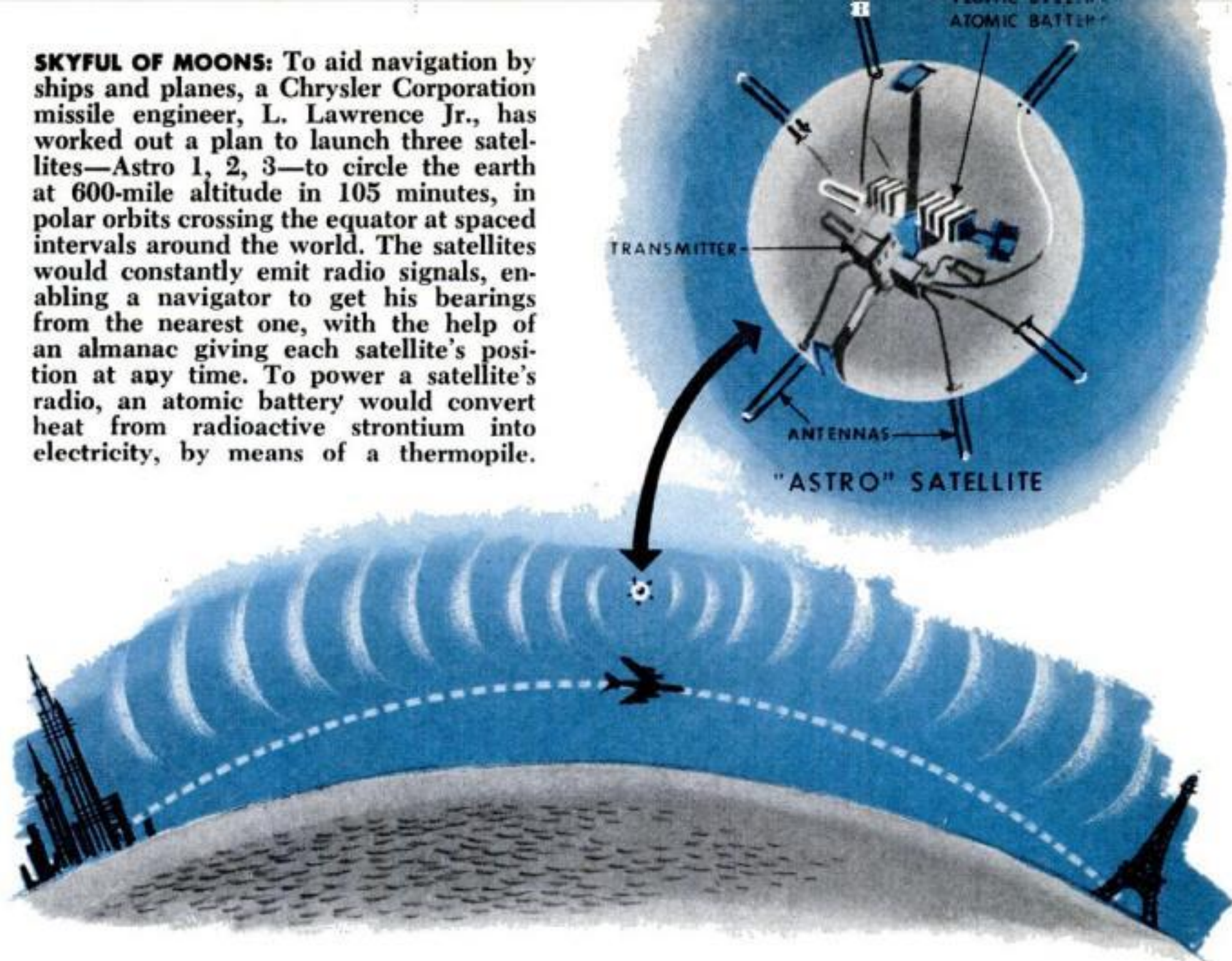
**SHOPPING ON WHEELS** is solution to parking problem offered by a New Haven, Conn., engineer, George W. Lyons Jr. He envisions whole shopping blocks remodeled to serve drive-in customers. Post office pictured here has lanes and booths for desired services. Department stores would have drive-through lanes for picking up phoned orders. Small shops could jointly offer similar service in lanes at the center of each block.

**CARGO-CARRYING GUIDED MISSILES** may be developed for military use. Delivering supplies by missiles to combat troops in hard-to-reach areas is foreseen by Army Lieut. Col. Robert B. Rigg. Warheads would be replaced with prepackaged ammunition, medical supplies, food and fuel, and the missiles would be remotely guided to the combat area, where they would be landed under the recipients' own radio control by means of portable field sets. Picture shows fuel delivery by missile.

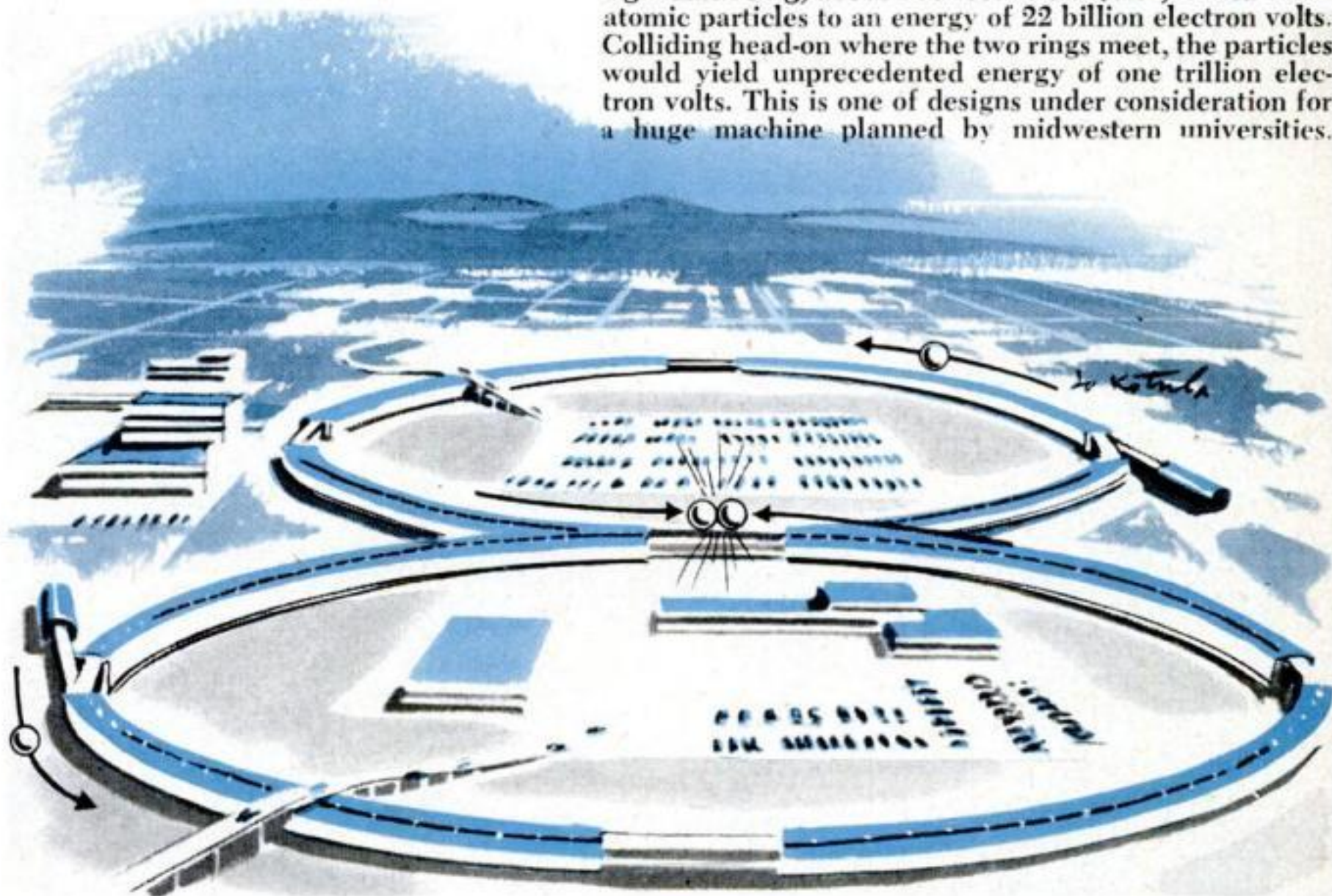




**SKYFUL OF MOONS:** To aid navigation by ships and planes, a Chrysler Corporation missile engineer, L. Lawrence Jr., has worked out a plan to launch three satellites—Astro 1, 2, 3—to circle the earth at 600-mile altitude in 105 minutes, in polar orbits crossing the equator at spaced intervals around the world. The satellites would constantly emit radio signals, enabling a navigator to get his bearings from the nearest one, with the help of an almanac giving each satellite's position at any time. To power a satellite's radio, an atomic battery would convert heat from radioactive strontium into electricity, by means of a thermopile.



**SUPER ATOM-SMASHER** would have a figure-eight design. Each ring, about 700 feet in diameter, would whirl atomic particles to an energy of 22 billion electron volts. Colliding head-on where the two rings meet, the particles would yield unprecedented energy of one trillion electron volts. This is one of designs under consideration for a huge machine planned by midwestern universities.





# Radar Builders Outfox

**By Herbert O. Johansen**

***For thousands of men, home  
—a piece of geometry on stilts—  
is where you hang your parka.***

**S**PREAD across the Far North, from Baffin Island in Canada's Northwest Territories to Point Barrow in Alaska, thousands of men in dozens of bustling construction camps are getting ready to face another Arctic winter. They are building a 3,000-mile chain of Distant Early Warning radar stations—the Dew Line.

A Dew Line main site, as visualized by an artist, shows a Sea Wolf amphibian in action.





# the Arctic

Most of the Dew Line lies above the Arctic Circle, much of it never before trodden by man. It has tempted a few explorers and venturesome whalers, many of whom it has buried in frozen graves. The migrant Eskimos spend most of their time just keeping alive.

One of the toughest problems of this vast billion-dollar building project is battling the permafrost—ground that is permanently frozen to a depth of several hundred feet. In the brief summer, however, it thaws down a few feet, creating a mushy bog.

**Conventional foundations** are impractical. If a building were put directly on the surface, radiated heat would gradually melt the permafrost until the entire structure sank below the ground.

So in the flat tundra of Alaska and western Canada, the buildings are set on wooden piling. The holes for the piles, some of them 12 feet deep, are made by steam jets or earth augers. Around the piles, the frozen ground closes in with a grip more solid than that of concrete. Then modules, prefabricated plywood building units, are eased onto the piling, with a three-foot space between floor and ground.

The reason for this under-floor breeze-way is twofold. It keeps heat radiated from the buildings from melting the permafrost; it lets snow blow through so that it won't pile up in high drifts.

In most of the Canadian sections, the foundations are gravel insulating pads, 12 feet thick, that keep the permafrost from melting. Here, again, the modules are set on a framework of stilts, three feet above the ground.

As the modules are delivered at a site (PSM, Aug. '56, p. 86), they are eased onto the foundation framework and set six inches apart. The six-inch spaces are then filled with vermiculite, as a fire stop.

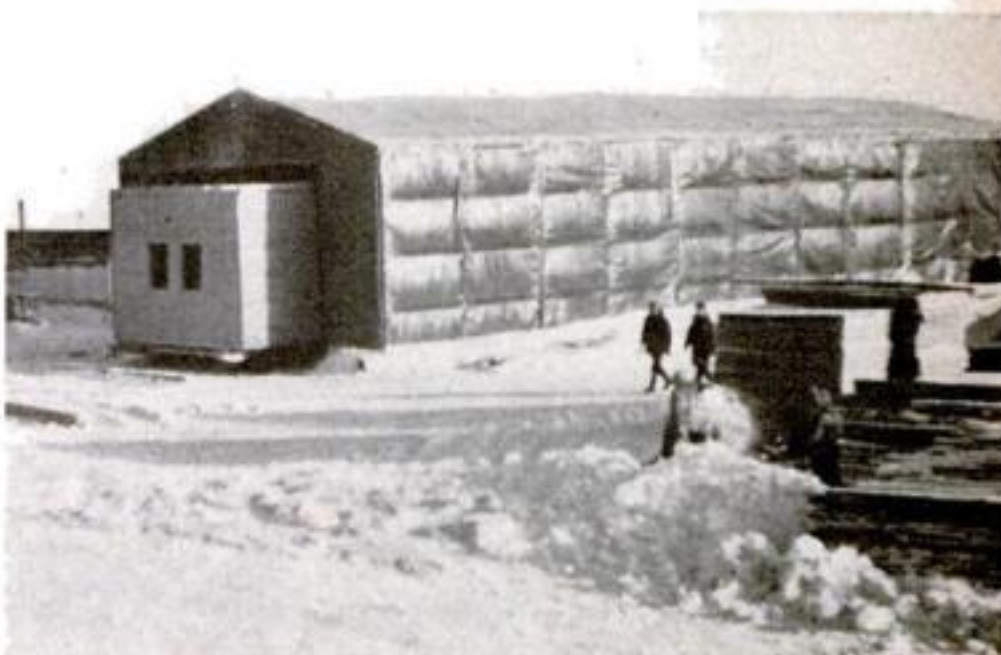
**Fire is feared** in the Arctic as perhaps nowhere else—and for good reasons: lack



**COMMUNICATIONS ANTENNAS** are experimented with by electronics engineers as construction workers complete an auxiliary site. This type of site has a "building train" of 25 modules.

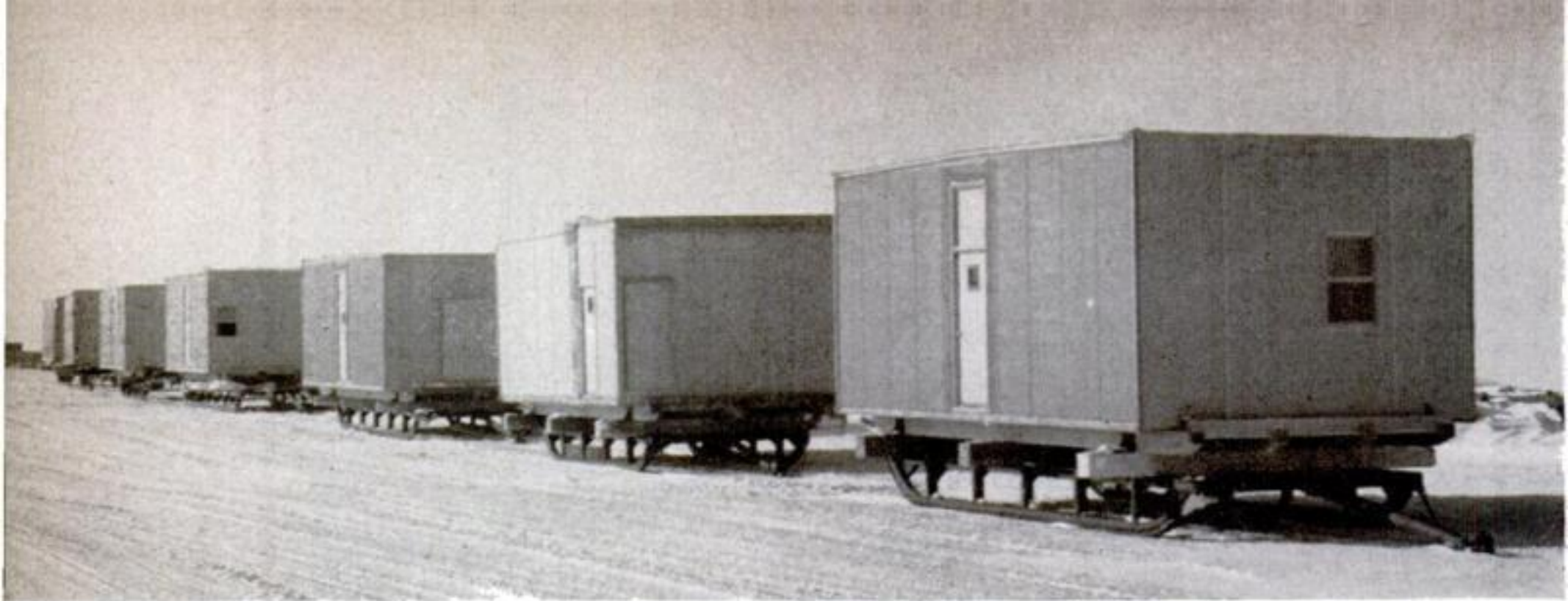


**RIGID PLASTIC RADOME** will go on platform of tower straddling building. It will house rotating search-radar antennas. Shaft in center gives access from inside for maintenance.



**UNWIELDY MODULES** had to be put together near sites in rugged Canadian areas. Here a finished unit, end poking out, is being towed out of a specially insulated assembly tent.





**MOUNTED ON SLEDGES**, modules are ready to be "cat-trained" by tractors across the frozen, snow-swept tundra of Alaska to isolated sites above the Arctic Circle. The boxlike modules,

of humidity in the air, a shortage of water, and high winds.

In a completed building, every sixth module is a special metal-bonded unit that serves as a firebreak between functional and living-area sections on either side. The plywood panels of all modules

identical prefabricated plywood units that make up the Dew Line buildings, are insulated against below-zero cold, ice, snow and wind, measure 16 feet by 28 feet, and are 10 feet high.

are treated with fire-resistant paint. In every module there are automatic fire alarms and fire extinguishers.

**To heat the buildings** in a land where 50-below-zero temperatures and howling 100-mile-an-hour blizzard winds are common, engineers of the Western Electric Co., prime contractor for Dew Line, came up with an ingenious system.

Using what the Arctic has most of—ice—they chop the stuff up, then heat it with the 750-degree exhaust gases from a battery of diesel-electric generators. Result: hot-water heating plus warm water for showers and washing.

The size of the buildings and the number of modules that make them up depend on their Dew Line job. There are three types of buildings:

**Main sites.** These are the largest. They consist of 53 modules, 26 in one and 27 in the other of two parallel buildings connected by an overhead covered bridge. Their detection equipment will consist of rotating search radar. In addition, they will have elaborate rearward communications equipment and facilities—hangars, big garages, storage areas—for resupply, service and maintenance of the smaller sites.

**Auxiliary sites.** These are made up of 25 modules in one train. Their radar equipment and electronic early-warning equipment and functions will be the same as that of the main sites.



**ESKIMOS** along our top-of-the-world radar-warning fence are learning construction skills. Carpenter Charles Akwiana (above) works on an Alaskan site. He makes \$4.20 an hour.



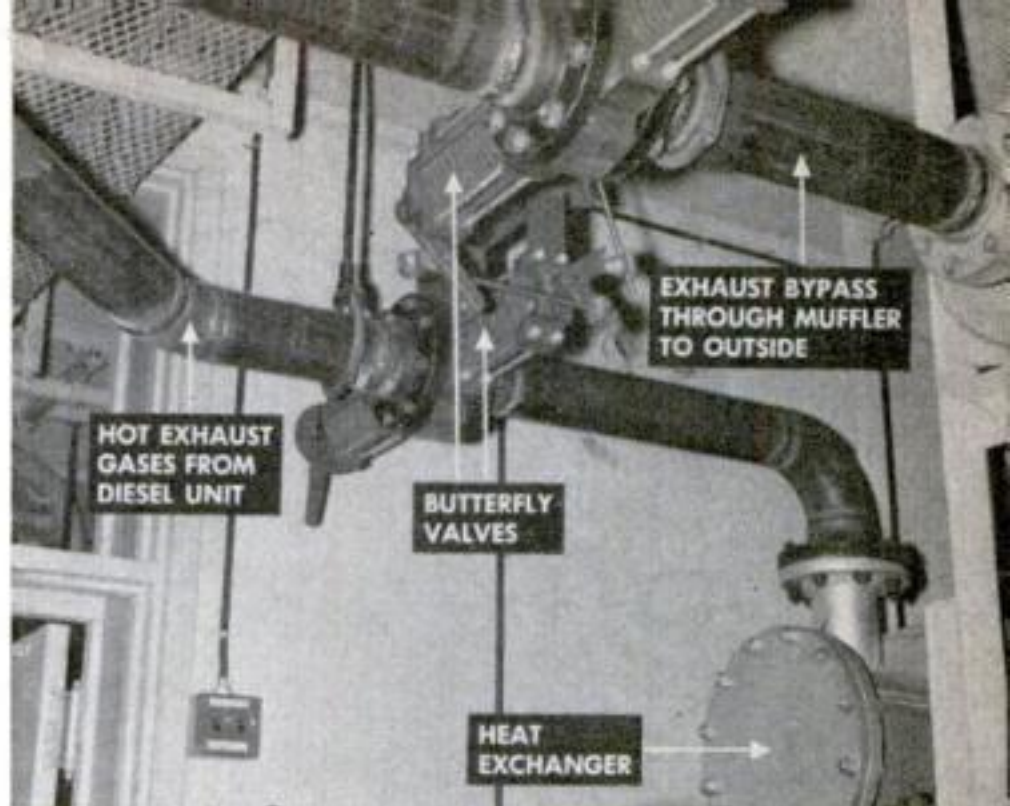
**Intermediate sites.** These are "gap-fillers," with five-module buildings and non-rotating radar. Their mission: to close the gaps where terrain difficulties made it impossible to space the other stations where their scanning coverage would overlap.

How much advance warning will Dew Line give us? The Air Force says that it can pick up the fastest jet bombers of today, even at high altitudes, in time to give industrial centers of the United States from four to six hours' notice of an impending attack.

**One automatic feature** of Dew Line's radar has been disclosed. It is an automatic alarm system that sounds off when a "blip" appears on a scope, indicating that an "object" has been picked up by the radar. Thus, since an operator will not have to sit with his eyes glued to every scope 24 hours a day, fewer people will be needed to work the stations.

Personnel manning the sites will be mostly civilians. Eskimos will be used wherever possible, principally for maintenance jobs. Air Force officers (Canadians in the Canadian sections) will be assigned to make military decisions.

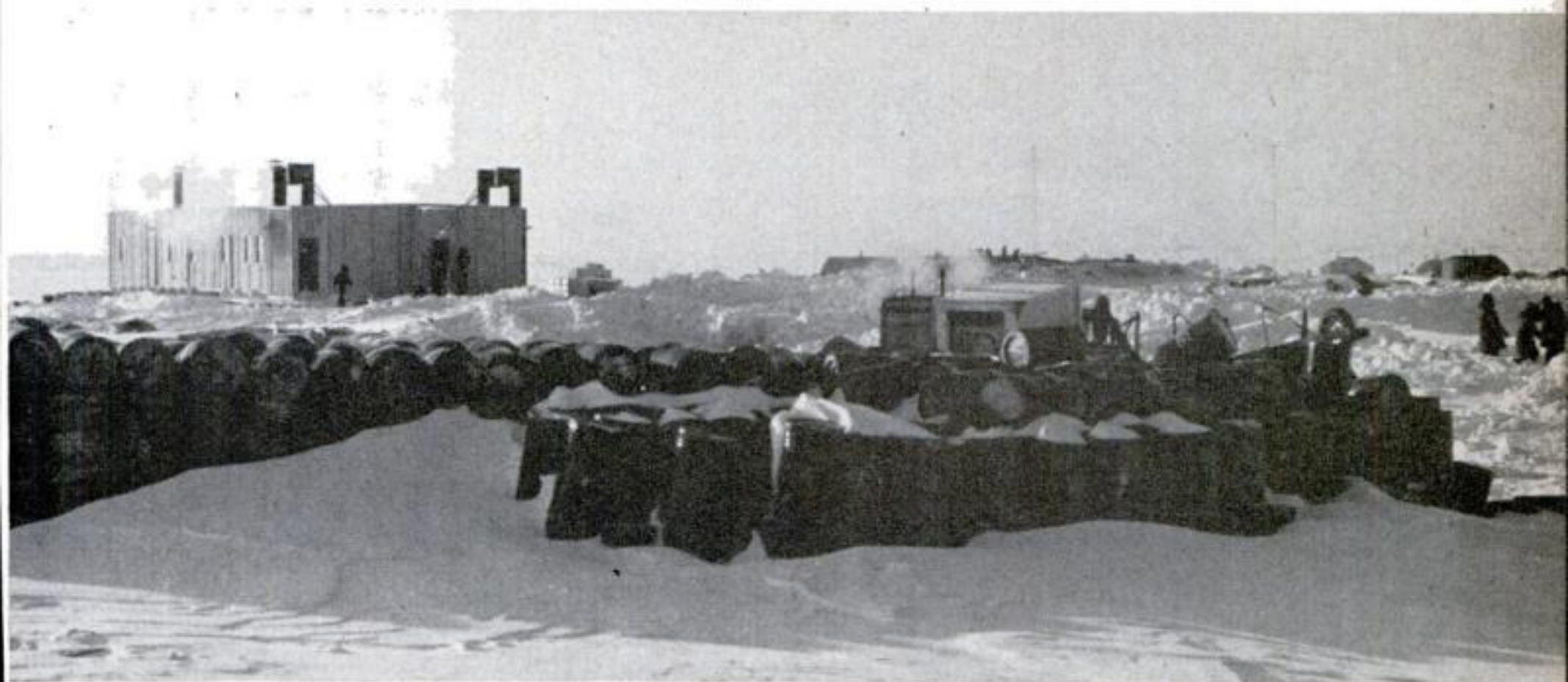
Dew Line is in no sense a combat line. Any information picked up indicating the approach of hostile airplanes will be transmitted to Canadian and U.S. air-



**HEATING DEW LINE BUILDINGS** starts with water from melted ice. The water picks up heat from hot exhaust gases of diesel-electric generators through this heat-exchanger system.



**MOBILE HEATERS**, known throughout the North as "Herman Nelson" heaters, burn gasoline or oil. They pipe warmth into modules under construction to permit work at minus 50 degrees.



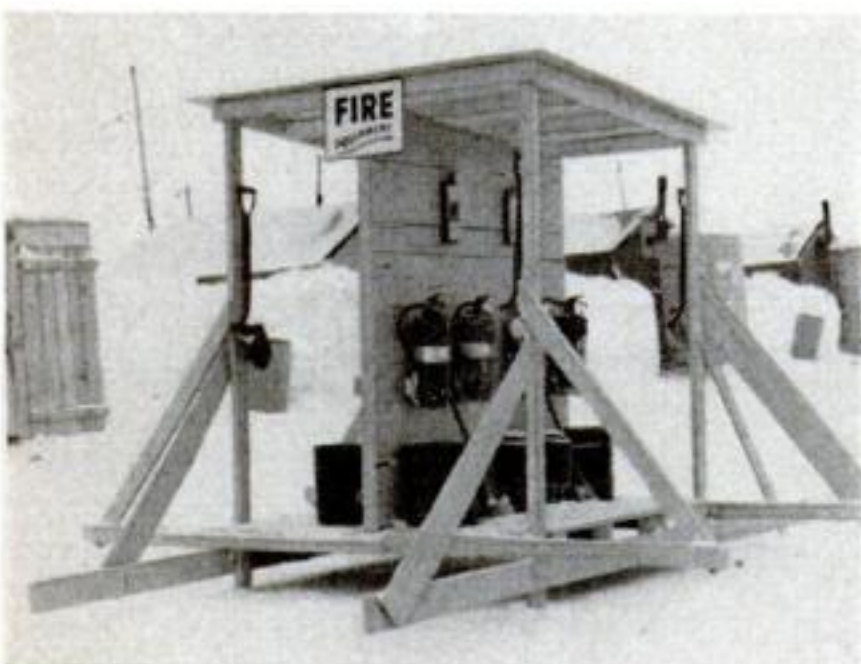
**GAP-FILLER**, or intermediate, site is the smallest, consisting of only five modules. Its non-rotating radar will plug holes in the line. The barrels

piled in the snow contain POL (petroleum, oil, lubricants), to keep machines moving and to provide life-sustaining warmth to men.





**MAN'S WARMEST FRIEND** in the Arctic is a Herman Nelson heater. Here a unit is unfreezing an engine of the C-124 Air Force Globemaster in which the author flew the Dew Line.



**FIRE-FIGHTING STATIONS**, with chemical extinguishers, stand along "streets" between temporary buildings. Water shortage and high winds make fire a grave hazard in the Arctic.



**BORROWING FROM THE ESKIMO IGLOO**, construction workers place blocks of compacted snow around their living quarters to keep warmth in. Entrance is an up-ended packing crate.

defense installations, such as the RCAF Air Defense Command, the U.S. Continental Air Defense Command and the nerve center of the Strategic Air Command.

**Radio communication** on Dew Line must be reliable. It is not, in the Arctic, because of magnetic storms. That is why parts of the communications system are designed for a new "scatter" technique, using Very High and Ultra High frequencies and parabolic antennas. Normally VHF and UHF have a line-of-sight range, a hundred miles or so. But by angling the signals upward, and turning on tremendous power, enough signal strength is reflected back by the upper troposphere and ionosphere layers of the atmosphere so that they can be received up to 1,200 miles away without atmospheric interference or interruptions by "blackouts."

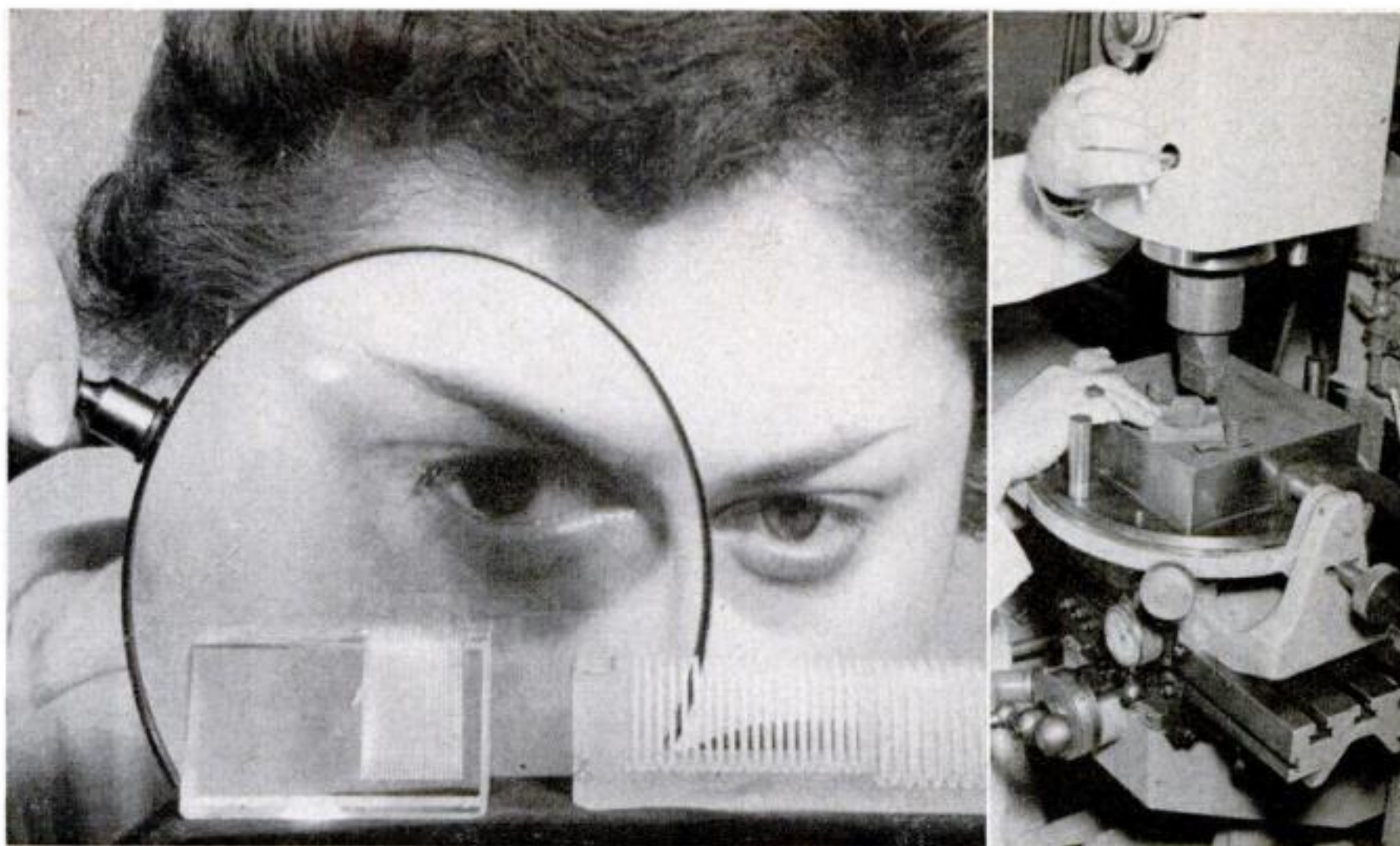
When Dew Line goes into operation, it will complete a tight-knit network of early warning that an enemy will find hard to sneak through. The top-of-the-world radar chain has flanking arms down both sides of the continent. To the east of Baffin Island we have our Greenland radar installations. And it has been proposed that the Dew Line itself be extended more than 1,000 miles west along the Aleutian chain of islands to Attu, opposite the Soviet Kamchatka Peninsula.

**Backing up Dew Line** is the Mid-Canada Line, now under construction approximately across the 55th parallel. Below that is our third-team radar fence, the Pine Tree Line, stretching from coast to coast, roughly along the U.S.-Canadian border.

These are our lifelines of early warning against today's air weapons.

Aside from their value as warning signal of an enemy punch coming so that we can hit back fast and hard, our Arctic sentries serve another purpose, as pointed out by an Air Force general: "They will give civil-defense agencies time to undertake the necessary decisions relative to the safety of the civil population. This element of time may save millions of lives." **END**





### Army's New "Sound Slicer" Cuts Quartz Without Touching It

SIGNAL CORPS scientists now get three times as many usable wafers of scarce, expensive quartz, vital for radar and guided missiles, out of the same block. The cutting head of the "sound slicer"

(right) developed by Raytheon Co., Waltham, Mass., resembles a battery of razor blades. It shears mineral by ultrasonic impulses. The checker at left tests wafers, shown beside old-style blanks.



### Push-Button Bar Mixes Drinks

THIS automatic bartender whips up a highball in three seconds, with just the right proportions of liquor and mix. The only trouble with the 200-lb. robot is that, unlike a flesh-and-blood barman, it can't listen to the customer's troubles and dispense helpful advice.



### Furnace Stirs as It Melts

THIS water-cooled induction furnace, in use at the Babcock & Wilcox Co. plant at Lynchburg, Va., melts the special alloys that make the fuel elements in nuclear reactors. A motor-driven stirring rod insures that the different ingredients in each "melt" are thoroughly mixed.



# New Supertankers Outgrow Harbors



**TOO BIG TO LOAD INSHORE**, the giant tankers take on oil from pipelines like this Near Eastern

one jutting way out into the deep water from a long thin sandspit in the Persian Gulf.

**Tankers have tripled in size in the last 10 years. Soon they may dwarf even the Queen Mary.**

**By David R. Lindsay**

**W**HEN the latest queen of the commercial seas, the Sinclair *Petrolore*, made her maiden voyage to America recently as the largest cargo ship of any kind afloat, she couldn't get up the Delaware River. She was carrying a load of oil from Kuwait on the Persian Gulf for a refinery at Marcus Hook, just outside Philadelphia. With her full load she drew 40 feet of water, but the Delaware channel is only dredged to 35.

Just inside the river mouth she pumped about a third of her cargo of 16½ million gallons to another tanker, the *Nashbulk*. Then both steamed upriver to the docks.

The choice of ship to do this lightering job was an ironic one. When the *Nash-*

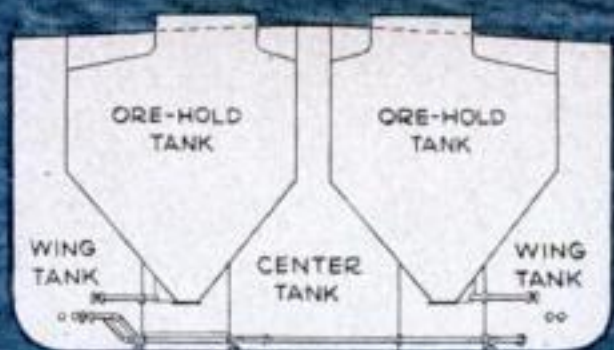
*bulk* was built in 1945, she was the largest tanker in the world. As her skipper wryly remarked, "Eleven years ago a queen—now we are just a steam barge."

In that period the title of largest tanker in the world has changed hands so many times that, to quote one shipping man: "We'd read about a new record holder every week."

**Cargo carriers are rated** by the ability to lift a payload (deadweight tonnage in long tons of 2,240 pounds). The champion *Petrolore* has a capacity of 56,500 tons of crude oil, compared to the *Nashbulk's* 1945 record of 24,000. When the *Nashbulk* was launched she was considered a supertanker. Today

**LARGEST CARGO CARRIER** now in service is this tanker-ore ship, the Sinclair *Petrolore*. Tank and hold arrangement is shown in cross-section drawing. Pumps and conveyor-belt system, with a swiveling boom visible in photograph, make the ship entirely self-unloading with either cargo.









**LONG NARROW CATWALK** connecting the bridge with the deckhouse aft must be traveled by

sailors to get to chow. These men are returning from a routine emergency drill while at sea.



**PLOWING THROUGH THE WAVES**, instead of riding over them, loaded supertankers can get plenty wet. Even in comparatively mild weather like this, the catwalk is frequently under water.

40,000- and 50,000-tonners are common, and the *Nashbulk* comes in the category of "little supertankers." There are some 70 supertankers of 30,000 tons or more in service, and more than three times that many under construction, on order, or planned.

The *Petrolore*, in fact, is about to lose her briefly held crown as the world's biggest cargo ship in actual service. An 83,500-tonner was launched last month at Kure, Japan—the first of two new supertankers of that size built by the same company that owns the Sinclair *Petrolore*: National Bulk Carriers of New York. (The Sinclair in her name comes from the Sinclair Refining Co., which has the ship under a long-term charter.)

A supertanker is a huge rectangular box, divided into smaller compartments so that oil won't slosh around and so that, if desired, several kinds of refined products can be carried at once.



At the front of this squared-off box is a more or less pointed bow (surprisingly blunt on the *Petrolore*), usually containing bunker oil for the ship itself and sometimes a small dry-cargo hold. At the stern there's space for engines, more bunker-oil tanks, and a house for crew's quarters. On a regular tanker there's another house amidships with the bridge and deck officers' quarters. On a combination tanker-ore carrier this house is way up forward.

**The main body of the ship** is a slab-sided, flat-bottomed tank, with valves and pipelines all over the place. There is a minimum of curves because the idea is to get the greatest volume without making the draft too great or the ship too wide.

The *Petrolore*, with her 40-foot draft and 106-foot beam, can just squeeze through the Panama Canal with a load. The controlling depth in the canal is 41 feet, the lock width, 110. Even the *Queen Mary* and *Queen Elizabeth* draw a few inches less than 40 feet. In length, the *Petrolore*—789 feet overall—ranks sixth among merchantmen now in use, coming after the *Queen Elizabeth* (1,031), *Queen Mary* (1,020), *United States* (990), *Liberté* (937) and *Ile de France* (793), all of them transatlantic passenger liners. Only the two Queens are broader.

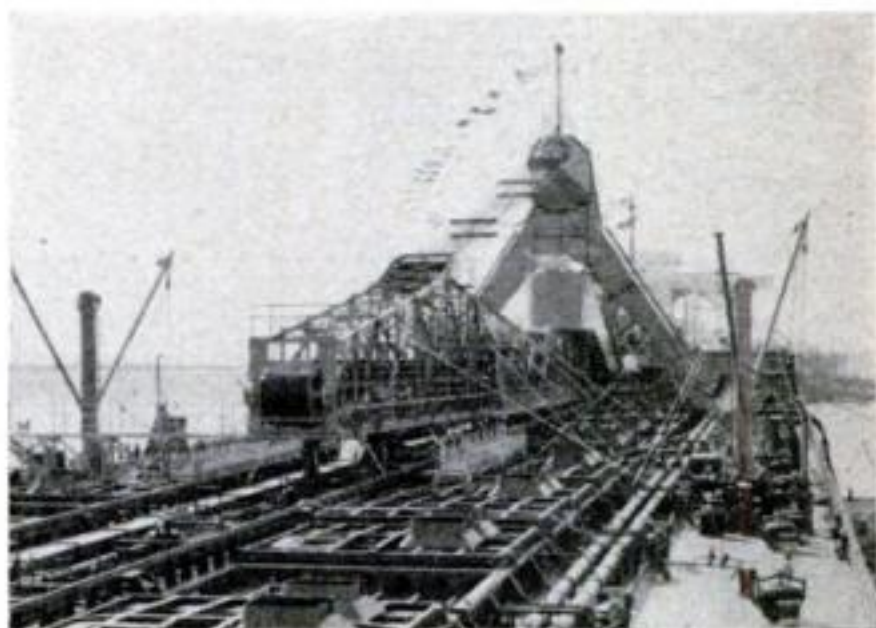
The 83,500-ton supertankers will be roughly 850 feet long, 125 feet in beam, with a loaded draft of some 47 feet. They'll be too big for any of the world's great canals and most of the world's harbors. The busiest port in the world—New York—is dredged to only 45 feet.

**Tankers got so big** because size saves money. An increasing share of America's oil comes from overseas fields—in the Middle East, Central and South America, and the East Indies. The oil companies just can't move it home fast enough. And what goes for the U.S.A. goes triple for Great Britain and much of the rest of Western Europe, which has to import almost all of its oil.

On the Delaware River alone there are today seven refineries in operation



**SCRAPE AND PAINT** is the order of the day at sea. The supertankers require no more men to run them than smaller ships but need extra hands to care for their huge metal surfaces.



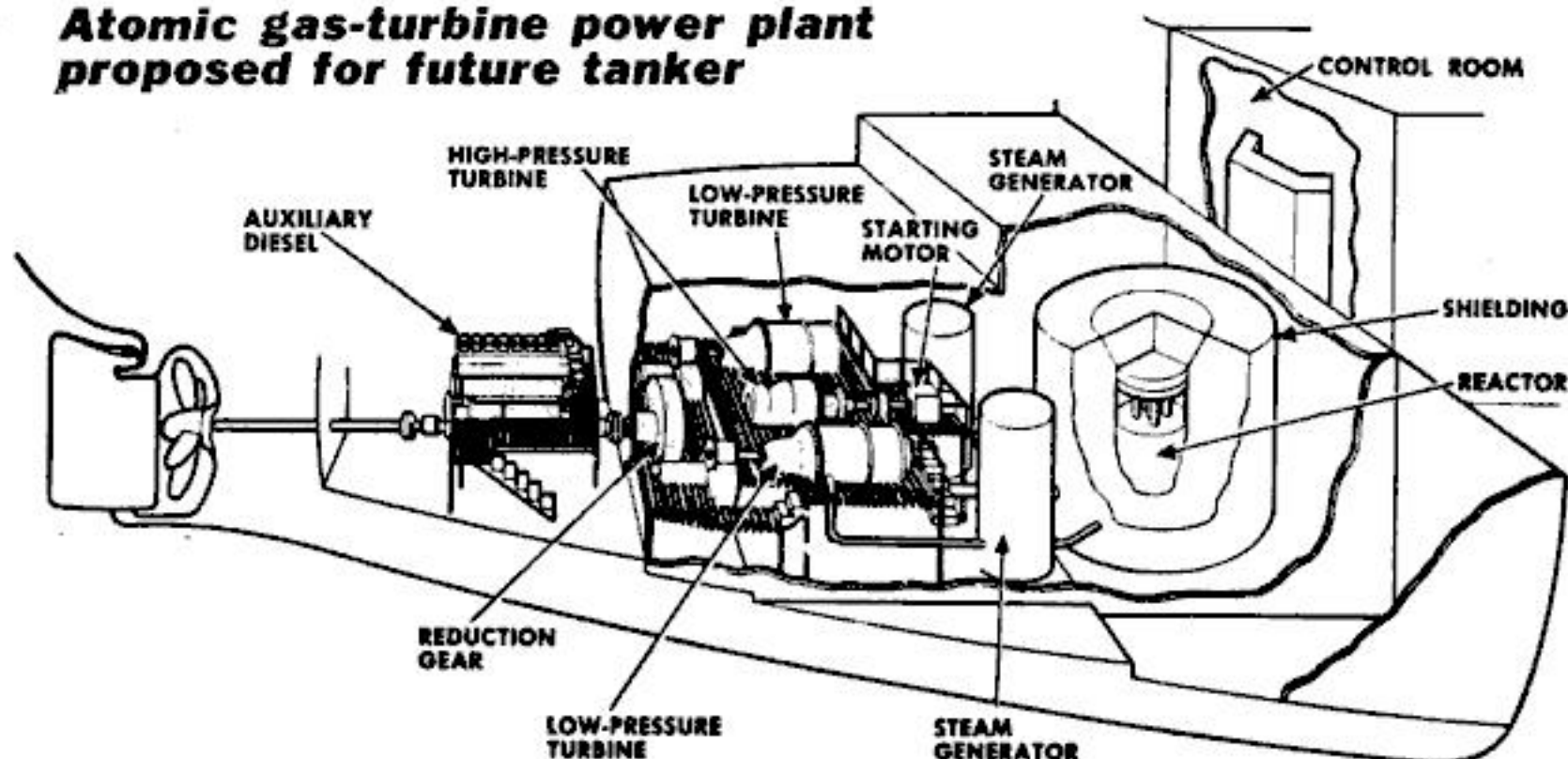
**ORE-CONVEYOR BOOM** on the *Petrolore* is shown here swung fore and aft above the tank deck when under way. The tank deck, as on all tankers, is a crowded maze of pipes and valves.

which can use a total of some 800,000 barrels of crude oil a day (a barrel equals 42 gallons), and another one is now being built. A full load from the *Petrolore* is about 400,000 barrels, half a day's supply for the whole river, less than four days for the Sinclair refinery.

But it's still a whale of a lot of oil. Carried by rail, it would fill 1,350 railroad tank cars making a train 10½ miles long. It would heat 2,000 small homes all winter, run 14,000 cars for a year—and still leave enough to operate a super-



## Atomic gas-turbine power plant proposed for future tanker



Hot gas from a nuclear furnace, instead of steam from oil-fired boilers, may spin the turbines powering tomorrow's tankers. How it would work in a 707-foot, 38,000-ton tanker is shown in this sketch, based on a proposal to the U. S. Maritime Administration by the Ford Instrument Co. Ford Instrument engineers have planned a similar power plant to produce electricity for Holyoke,

Mass. (PSM, May, p. 156). Gas carrying off heat from the reactor in a closed circuit turns both low- and high-pressure turbines. The propeller shaft is driven by the low-pressure units. The high-pressure turbine generates power for lights and other sources requiring electricity. Exhaust gases, before returning to the reactor, make steam that runs auxiliary machinery and heats the ship.

liner like the *United States* for a couple of weeks.

Ten years ago, 18,000 tons was considered pretty big for a tanker, but a modern ship of twice that capacity can cut transportation costs per barrel by about a third. It doesn't take so much more fuel to move the bigger ship, the crew is very little larger, and even the cost of building is not proportional to capacity. Some of the big tanker operators are now talking about ships of 100,000 tons, and a former shipper who is adviser to one large firm predicts that 200,000 tons may not even be the top.

At present, limitations are set by the problems of unloading and the availability of drydocks big enough to service these gigantic vessels. Lightering oil with "little supertankers" seems to offer a solution for the first. The drydock problem may be solved by building new docks.

National Bulk is already talking about constructing a new shipyard from scratch in the West Indies. Loading the monster ships is not a problem because they generally take on oil offshore.

**Life aboard a supertanker** is acknowledged by seamen to be tough. The ships spend hardly any time in port; there's plenty of work to do; and there's always the danger of fire and explosion.

Pay and quarters, however, are much better than average. Compared to many of the newest tankers, the *Petrolere* is pretty Spartan, but she has only two men in a room, with separate rooms for each officer, and recreation rooms for officers and men.

At the top end of the luxury scale are ships like the Norwegian 34,320-ton *Jaragua*, finished last fall, which has separate wood-paneled staterooms for

[Continued on page 292]





## Electronic Jive

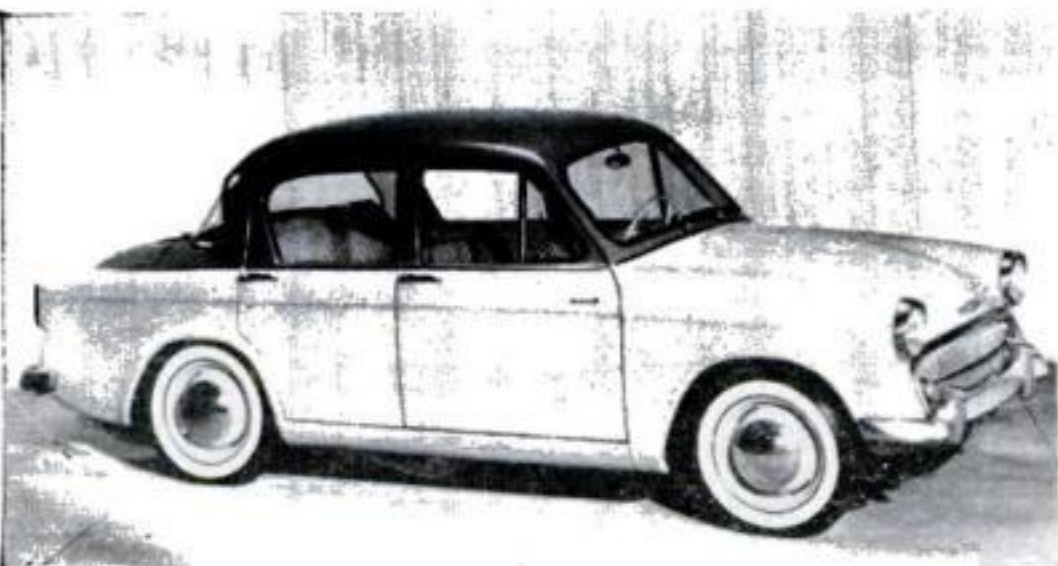
### Automation Edges Out Tunesters, Writes Songs Wholesale

THE pianist above is playing a tune as it is composed by the electronic brain he gazes at wistfully. The complicated Burroughs machine can turn out 1,000

tunes an hour—all mathematically calculated to be popular. It picks off a series of coded numbers, matches them with melodic formulas, rejects sour notes.

### Ribbon Never Touched by Hands

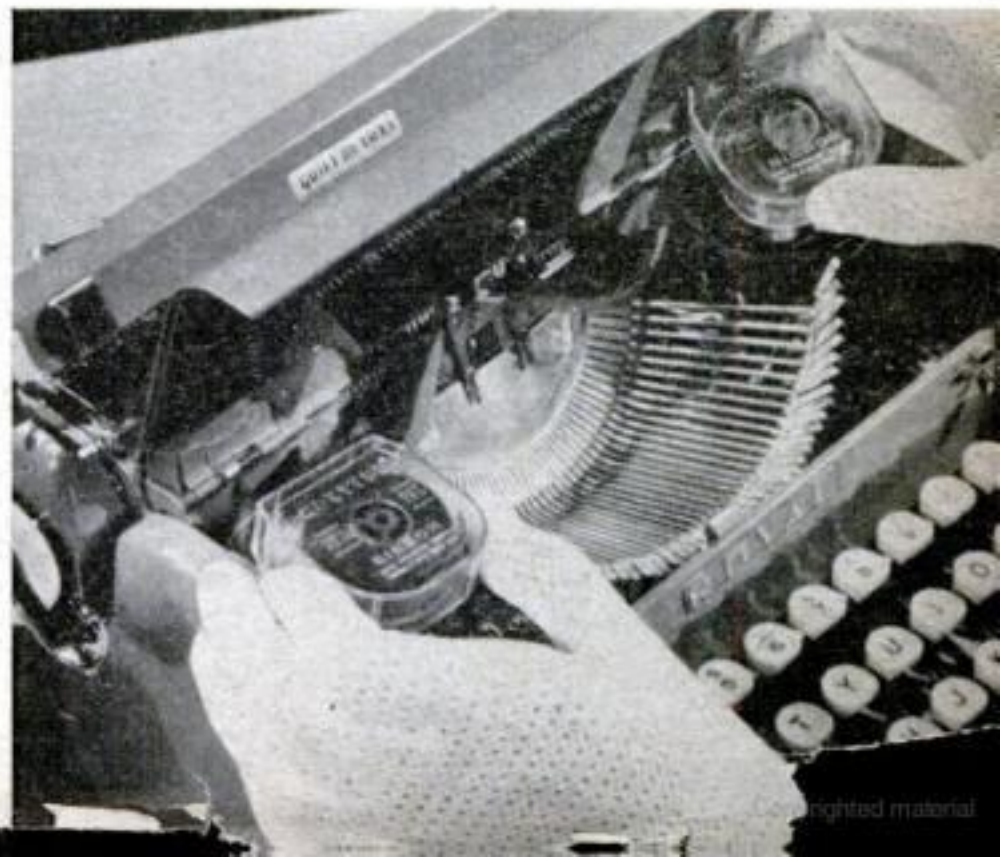
THE white gloves below prove that changing a ribbon on a new Royal typewriter won't soil your hands. Modified guide slots on the machine catch up the ribbon when two plastic boxes encasing it are dropped over the spindles. The first key hit locks it in place.



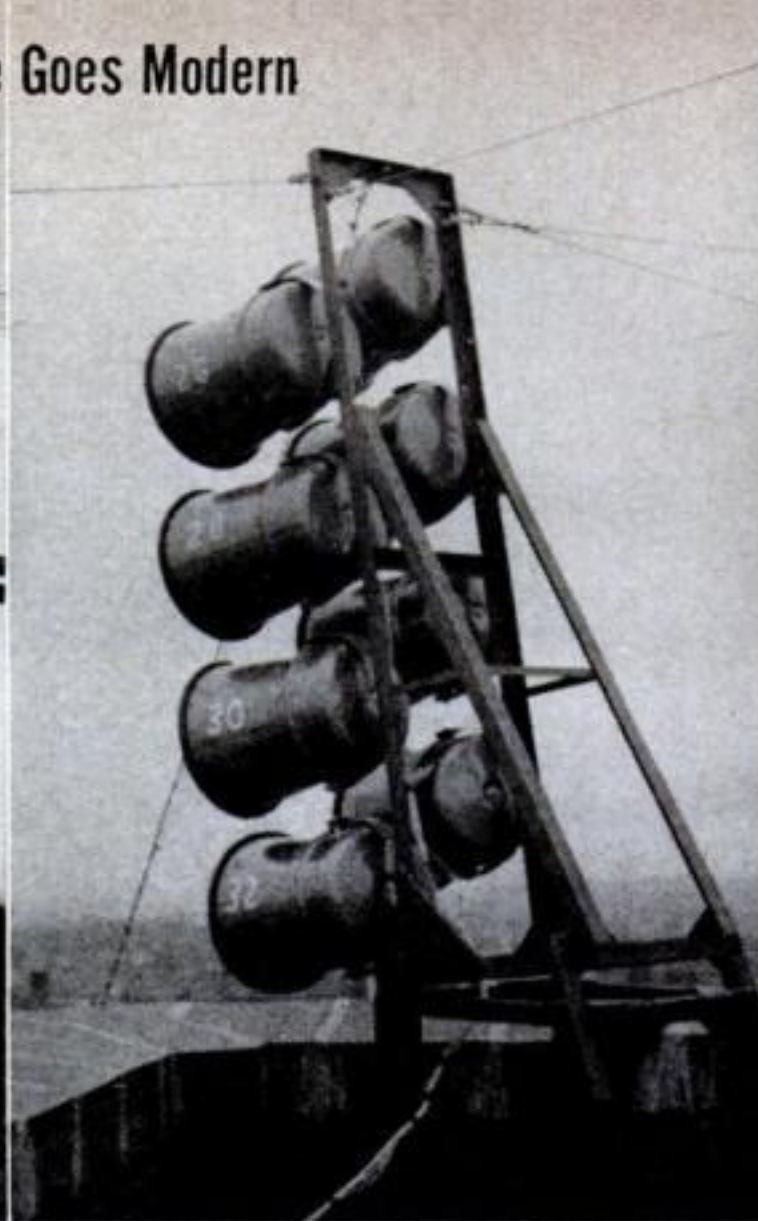
### British Chariot Swings Low

LOWER lines with no loss in ground clearance and more space for riders—that's the '57 Hillman Minx. A recessed floor adds head- and leg-room. The 35-m.p.g. car packs the same overhead-valve engine now boosted to 51 hp. by an 8:1 compression ratio. The new front end has independent wheel suspension.

SEPTEMBER 1956 139







## Loudspeakers to Blare by Land and Air to Warn of Attack

FEDERAL and local civil-defense authorities are testing the use of loudspeakers to supplement siren warnings.

In Operation Paul Revere (left) powerful sound projectors under the wings of

a plane are ready to warn the public, control traffic and handle special situations. The range is better than a mile. In Operation Big Voice (right) speakers are banked on a Gary, Ind., hotel roof.

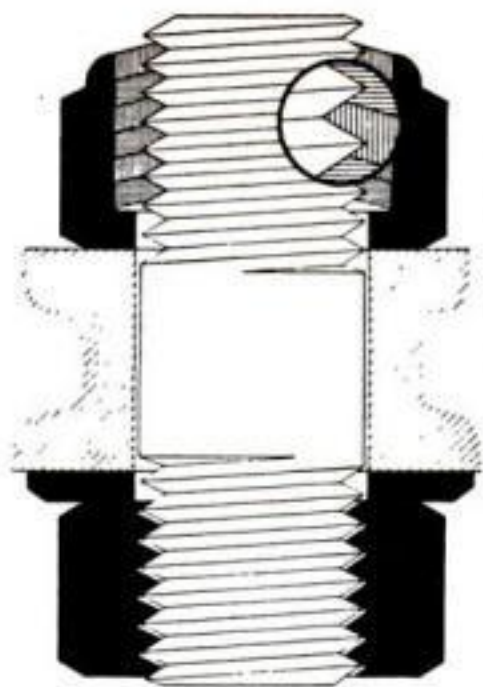


## Remote Control Mans a Robot Camera in Television Studio

ONLY a TV actor appears in the photo at left above—there's no cameraman. The camera is fully operated from the remote-control panel at right. One technician there adjusts the focus, changes lenses, shifts shooting angles, operates film and

slide projectors and controls all audio circuits. The system was devised by Kay Lab of San Diego when KSHO-TV in Las Vegas, Nev., went on 24-hour, three-shift telecasting without enlarging its staff of three technicians.





### **Disks in Hollow Nut Hold It on Tight**

RESILIENT conical disks in the hollow British nut at top only wedge the nut tighter when it's shaken, unlike the solid nut below. The nut is made by Lester Lock Nut and Washer Co., Ltd., Wordsley.

### **Phone Booth Like Toadstool**

THE lady with her head caught in the free form at right is undergoing an ordeal no more serious than telephoning. Proposed by Petras Aleksa at the Illinois Institute of Technology, the booth would be cooler than conventional ones and is adaptable for future TV phones.



### **Monorail Hauls Construction Materials Anywhere on Job**

A NEW hopper car on a rail automatically carries building materials to such work as the floor-pouring job below. Started on its way at the loading point,

the Chain Belt Co. Railporter travels unattended to the site, where a stop-bolt trips its power and sets its brakes. Two men can lay its track in little time.

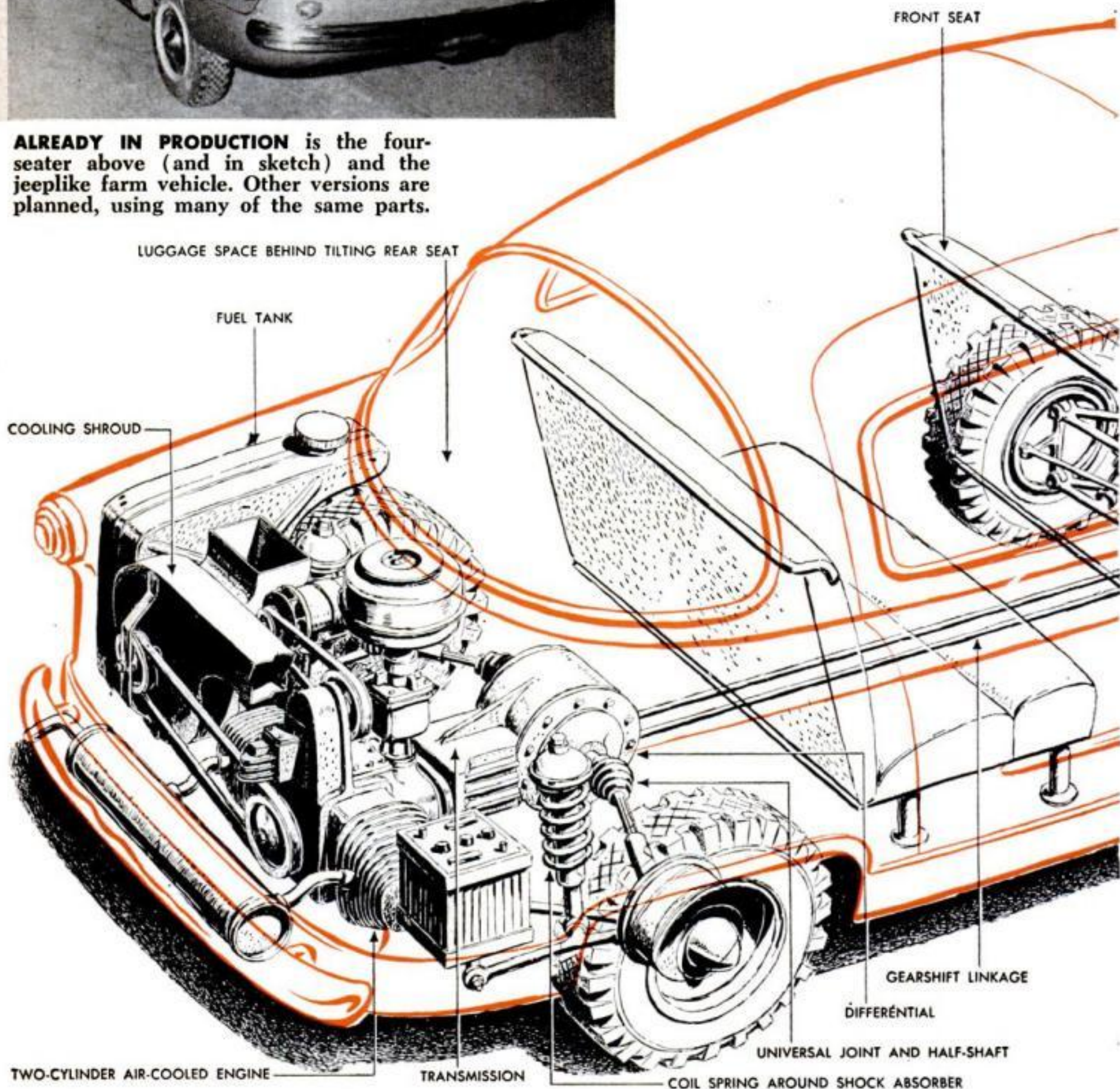






# New Light

**ALREADY IN PRODUCTION** is the four-seater above (and in sketch) and the jeeplike farm vehicle. Other versions are planned, using many of the same parts.



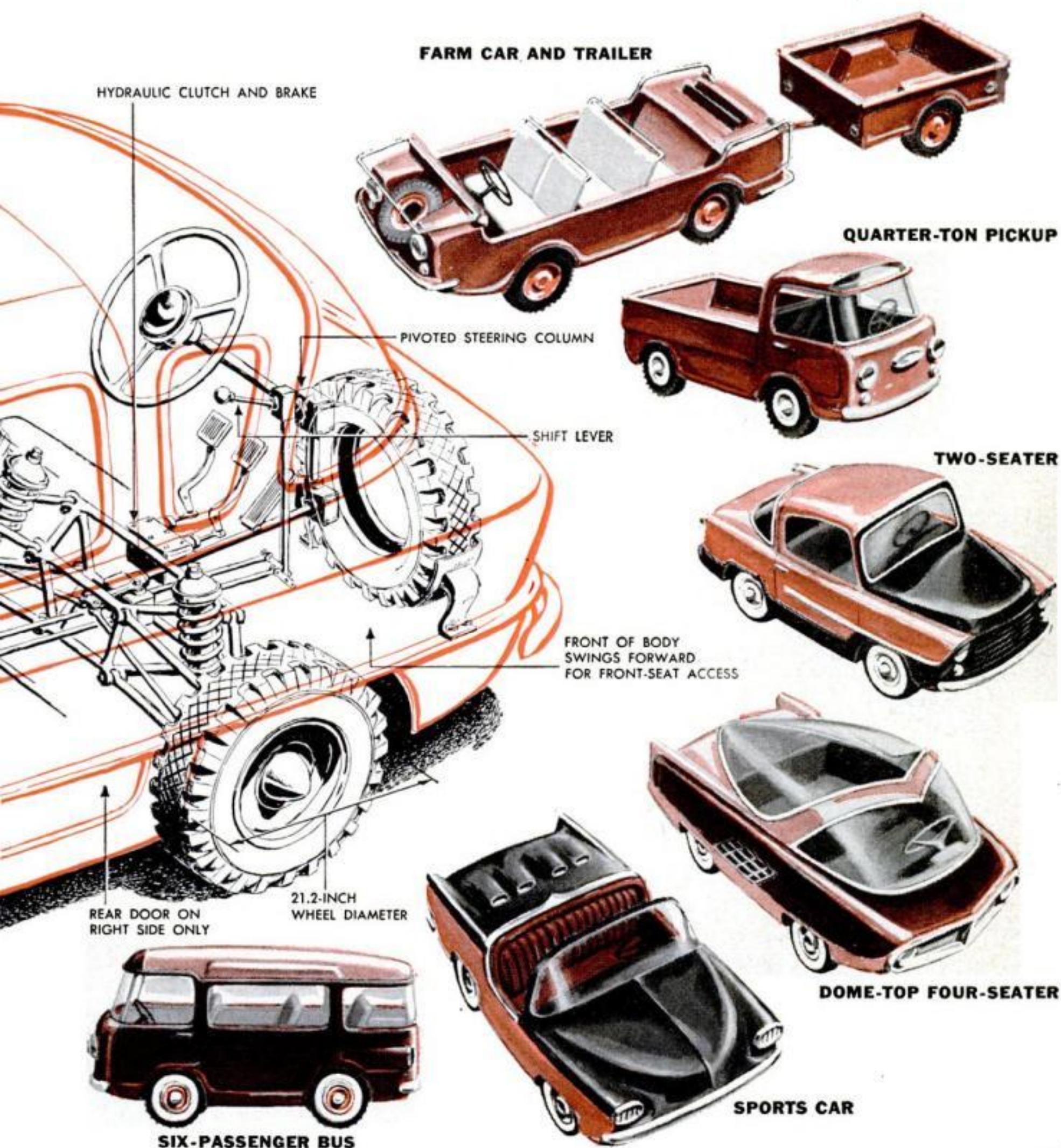
**T**INY but tough, the new Russian "Squirrel" is a chunky sedan just 11 feet long. Designed for mass production by a motorcycle factory in the Urals, it has a curb weight of 1,624 pounds, can get up to nearly 60 miles an hour, and does about 40 miles to the

gallon. The power plant, rear-mounted as a unit with a four-speed transmission and differential, has a displacement of 30 cu. in. and is rated at 20 hp.

Rear-seat riders get into the Squirrel by a single door on the right side. Access to the front seat is obtained by



# Car: The Red "Squirrel"



swinging the front of the body forward; the wrapped windshield, the instrument panel, and the steering column all pivot down as the body section is opened. The car has unitized construction and is fitted with small but wide tires for good footing on soft ground.

The Squirrel (*Byelka* in Russian) uses components that are also designed to fit a whole family of special-purpose small vehicles. Different floor pans permit different wheelbases, and the engine output can be varied between 15 and 30 hp. by changing the bore. **END**





**Chicago still blazed with nighttime lights  
when we loaded the VW with luggage at 4:30 a. m.**





**PORTRAIT OF THE PARTICIPANTS:** From left to right—Henry Comstock, the air-conditioned

Continental he drove from Chicago, Hubert Luckett, the little Volkswagen, Devon Francis.

# Volkswagen Races 858 Miles, Gets 29.6 Miles Per Gallon

**Trundling from Chicago to New York—within legal speed limits—a sturdy VW challenges the pace set by America's costliest car.**

**By Devon Francis**

**PS PHOTOS BY HUBERT LUCKETT**

**W**ELL, here was this Volkswagen and I looked at it and didn't say anything, and then I looked at Hubert Luckett.

**Luckett is skinny.** He stands six feet four inches barefoot and likes his comfort. If he could, he would take his meals lying down.

A Volkswagen is a German vehicle with four wheels, like a U. S. automobile, but there the resemblance ends. Under the hood where the engine should be, it isn't. In the back where the engine shouldn't be, it is. Compared with a U. S.

.....

*In the August issue of POPULAR SCIENCE MONTHLY two staff members described a run at legal speed from Chicago to New York in a plush, \$10,000 Continental. This month the same trip is made in a \$1,495 rear-engine Volkswagen.*

car, a Volkswagen is *klein*, which is German for small, which is the understatement of the year.

Luckett ran a bilious eye over the VW. "You mean," he said, "that I've got to ride all the way from Chicago to New York in *that*?"

We had topped off the gas tank. In driving up to the pump, I had overrun it



**SIX-FOOT-FOUR** at the wheel. "Should I drive it like an automobile?" Luckett asked.



by several feet, and the attendant—with one hand—had pushed the car back into position. Lockett stood clear away from the car.

"Pretend you don't know me," he said.

It was now 4:48 a.m. (5:48, New York time) of a coolish morning on Chicago's South Side. I got into the car. That wasn't hard. I'm only five feet, seven and a half. But Lockett's getting aboard was a production. He opened the right door, backed on to the seat, scissored his legs and somehow got himself stowed in. He sighed audibly.

*I fired up*, slipped the thing into gear and we were off. We would make New York as fast as we could within the restrictions imposed by the speed laws. We would count fuel and food stops in our elapsed time but would subtract time out for an overnight stop.

A Volkswagen runs sort of like a sewing machine. In traffic, you have to keep shifting gears, one-two-three-four, back to two, up to three, down to one again. That's because the vest-pocket engine has scant torque at low r.p.m.

Traffic was light. In 10 minutes, taking advantage of the VW's short wheelbase and excellent maneuverability, I had wheeled around a half-dozen other cars. In 20 minutes, we were out of Chicago. The Continental had taken an hour—in heavy traffic—to go the same distance.

"Maybe," I said, "we can beat the Continental's time to New York."

"If I get out and run alongside?" said Lockett.

At 7:28 a.m., by the multi-dialed chronograph on my wrist, we were well into the black-loamed Indiana farming country. I braked to a stop.

"You try it," I said.

We switched seats. Lockett shoved the left bucket as far back as it would go.

"Hmm," he remarked. "Good leg room."

I should push my luck? I kept mum.

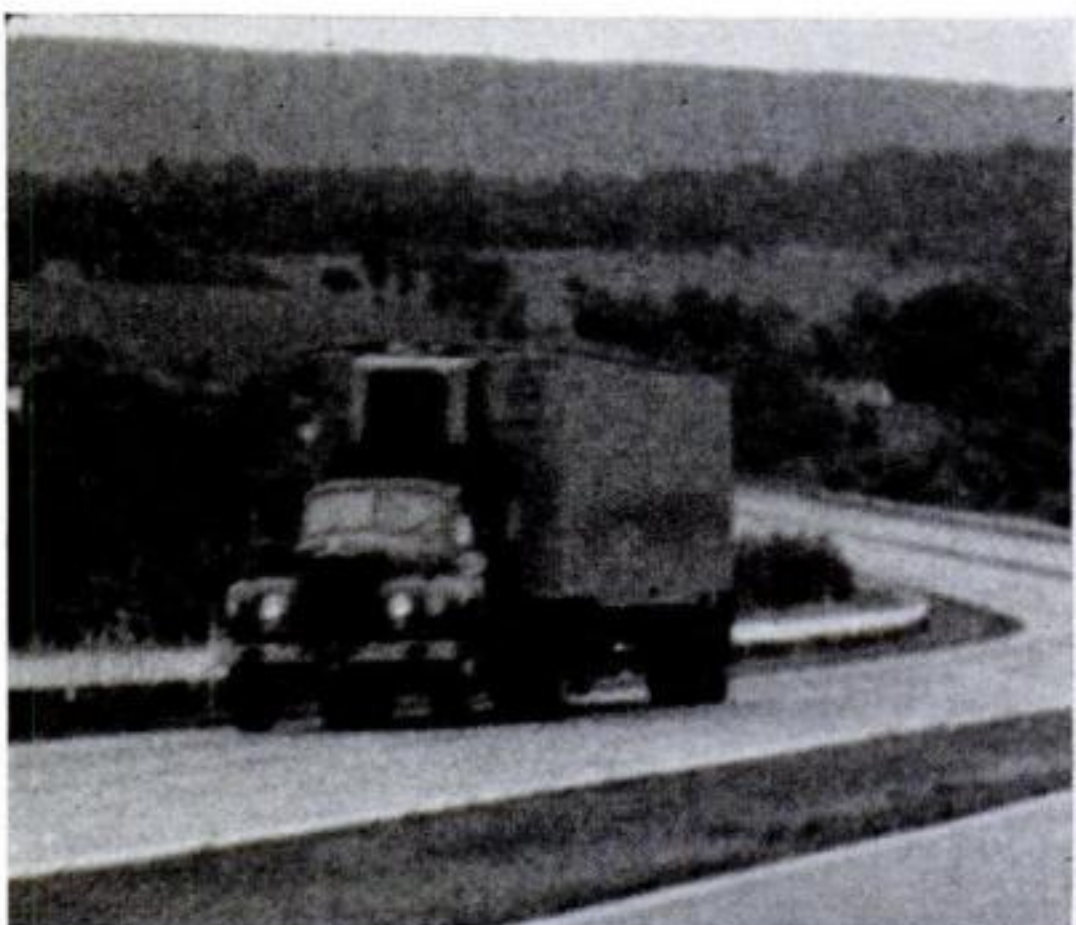
We were making pretty good time, despite a series of road repairs and a halt for a freight train at a grade crossing.

"Nice box," said Lockett. "Shifts fine." Then, evidently in a panic of anxiety lest



**NARROW, TWO-WAY ROADS** in Indiana slowed the VW's progress to a mere crawl now and then.

## Take a look at America's

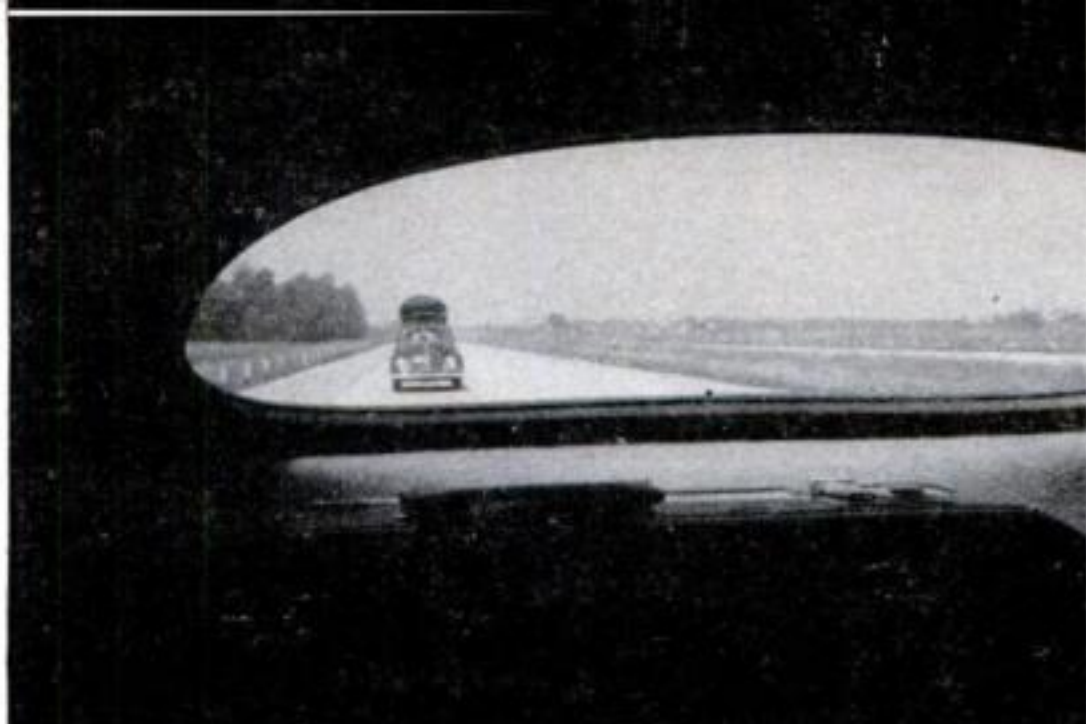


Pennsylvania's curvy turnpike was liberally



**FAN BELT** on the VW's air-cooled engine got a tension check when we stopped at Pittsburgh.





**REAR VIEW** on the Ohio Turnpike—another VW, with luggage on top, *five* passengers aboard.



**BUG SPLATTERS** took scrubbing. Despite VW's aerodynamic looks, it seemed to attract them.

## ***countryside through a Volkswagen windshield***



supplied with big trucks. We overtook 189, plus 127 passenger cars. Six trucks, 88 cars passed us.



**SEVEN TUNNELS** pierced the Alleghenies, and we had to slow down to 35 miles an hour.



**ROAD REPAIRS** flagged us down, too. All told, we had eight miles of one-lane traffic.





**GAS TRUCK** above restored a pulse to our mount. A service charge of \$3, by the way, was added on to the cost of the fuel.



**MANHATTAN SKYLINE** peeked over the New Jersey hills as we cov-

## ***Then we dummkopts ran out of gas almost within***

he overdo his concessions, he added, "Lot of wind-wander, though. Steering's too fast at high speed, too."

We were learning other things about the car. We had to drive it. A big car has the inertia of mass; it helps drive itself. This one was a handful. Moreover, in passing on a two-lane road in a big car with plenty of power, you can use every fair-sized opportunity. With the VW, we lost time because we tended to hang back when the opportunity offered. The

engine didn't have the top-range oomph for offhand passing.

Still we sped on. Another VW passed us going in the opposite direction. The driver flashed his lights and beeped at us. Lockett flashed his lights and beeped back. I didn't look at him. I was sure he would turn red-eared.

At 10:19 Eastern Daylight Saving Time, we flushed the west gate of the Ohio Turnpike.

"I figure that right now we're 57 min-

### **HOW THEY COMPARED**

	<b>VOLKSWAGEN</b>	<b>CONTINENTAL</b>
Elapsed time, Chicago-New York	17 hr., 11 min.	17 hr., 18 min.
Mileage traveled	858	864
Average speed	50.05 m.p.h.	49.7 m.p.h.
Fuel cost	\$8.07	\$19.53
Miles per gallon	29.6	14
Car weight	1,609 lb.	4,960 lb.
Engine	OHV 4-cyl. horizontally opposed; 36 hp.; displacement 72.7 cu. in.; bore and stroke, 3.03" by 2.52"	OHV V-8; 285-plus hp.; displacement 368 cu. in.; bore and stroke, 4" by 3.66"
Transmission	4-speed manual	Torque converter
Springs	Torsion bar, all wheels independently sprung	Coil, front; semi-elliptic, rear
Inside dimensions	Front seat width (split), 19" each, rear 52"; leg room, front 43½", rear 36½"	Front seat width, 59.6", rear 56.9"; leg room, front 42.7", rear 40.6"
Outside dimensions	Height 59"; length 160"; width 60½"; wheelbase 94½"; tread, front 50¾", rear 49⅛"	Height 56"; length 218.4"; width 77½"; wheelbase 126"; tread, front 58½", rear 60"





ered the last turnpike lap on a six-lane road at 60 miles an hour.



**ON THE GEORGE WASHINGTON BRIDGE** we were two minutes from New York. Lockett's alarm clock and a stop watch are at the right.

## ***sight of the spires and minarets of New York***

utes ahead of the Continental's time," I said after comparing notes.

"Umm," said Lockett.

On the turnpike, the VW permitting, we could fly. I had asked Import Motors of Chicago, the firm that had lent us the car, how fast we could drive it.

"Flat out all day long," we were told.

**Our speedometer error** had been determined. At an indicated 55 miles an hour we would actually be making 50; at 60—54 m.p.h.; at 65—60 m.p.h.; at 70—64 m.p.h. The Ohio Turnpike speed limit for passenger cars is 65.

Lockett put the accelerator on the floorboard. The needle began winding up. The engine ran quietly, but the transmission emitted a faint whine. We hit an indicated 70 miles an hour—true 64—and stayed there.

At 10:40, five hours and 52 minutes, and 206 miles, out of Chicago, we rolled off the turnpike and on to a filling-station plaza. We had averaged a shade over 35 m.p.h., most of it on two-lane roads, fighting oncoming traffic.

I had asked Import Motors what octane to feed our little engine.

"Any you can get," was the answer. "It will burn anything but wood shavings."

As the gas jockey refueled us, he asked, "You mix your oil and gas in this thing, like in an outboard?"

Lockett gave him a withering look.

The tank had taken 6½ gallons of non-premium fuel. We were getting 31.7 miles per gallon.



**WELL, THAT WAS IT.** The walls of Manhattan's canyons rose sheer above the Volkswagen.

[\[Continued on page 296\]](#)





## Popular Science Speedometer-Check Chart

# How Fast Are You Really Going?

DOES your car keep pace with your speedometer when you open it up? The chances are that it doesn't; most speedometers read high, with the error increasing in the upper speed ranges—the faster you go, the greater the error. (There's a widespread belief that the makers build them that way on purpose, for safety reasons.) To learn the truth about your instrument, you need only 1) a measured mile or highway with mile posts, 2) a watch, and 3) the conversion table at right.

**How to Use the Chart:** Drive a measured mile, concentrating on keeping at one of the indicated speeds at the top of the chart. Have a friend time the run with a stop watch, or a watch with a sweep-second hand. In the row below your indicated

speed, find the number of seconds (colored type) it took you to cover the mile. Your true speed is the black figure in the same box. The chart also shows you, of course, how fast you were traveling over *any* mile, even if you didn't watch your speedometer.

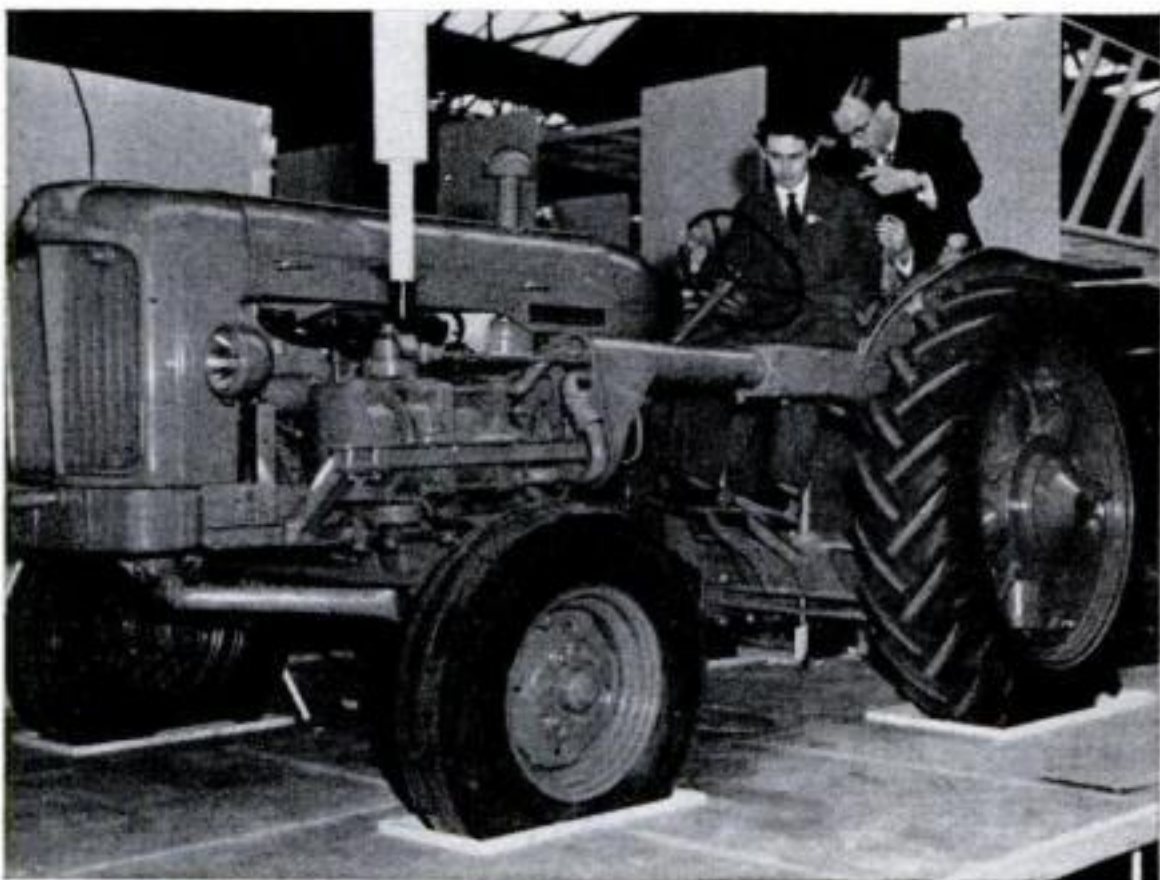
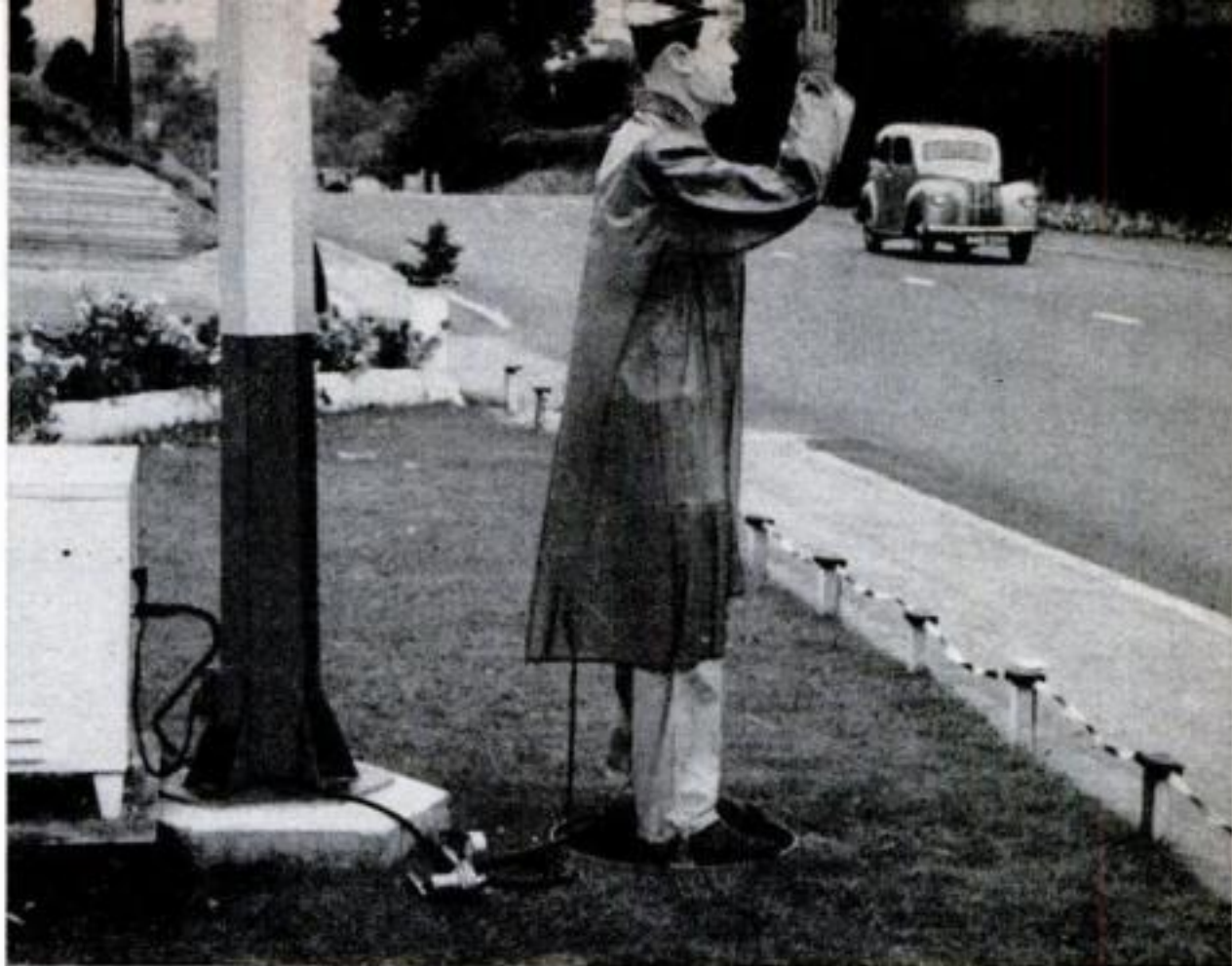
INDICATED (SPEEDOMETER) SPEED							
35	40	45	50	55	60	65	70
98 36.7	86 41.9	76 47.4	68 52.9	61 59	56 64.3	51 70.6	47 76.5
99 36.4	87 41.4	77 46.8	69 52.2	62 58.1	57 63.2	52 69.2	48 75
100 36	88 40.9	78 46.2	70 51.4	63 57.1	58 62.1	53 67.9	49 73.5
101 35.6	89 40.4	79 45.6	71 50.7	64 56.3	59 61	54 66.7	50 72
102.9 35	90 40	80 45	72 50	65.5 55	60 60	55.4 65	51.4 70
104 34.6	91 39.6	81 44.4	73 49.3	67 53.7	61 59	57 63.2	53 67.9
105 34.3	92 39.1	82 43.9	74 48.6	68 52.9	62 58.1	58 62.1	54 66.7
106 34	93 38.7	83 43.4	75 48	69 52.2	63 57.1	59 61	55 65.5
107 33.6	94 38.3	84 42.9	76 47.4	70 51.4	64 56.3	60 60	56 64.3
108 33.3	95 37.9	85 42.4	77 46.8	71 50.7	65 55.4	61 59	57 63.2
109 33	96 37.5	86 41.9	78 46.2	72 50	66 54.5	62 58.1	58 62.1
110 32.7	97 37.1	87 41.4	79 45.6	73 49.3	67 53.7	63 57.1	59 61
111 32.4	98 36.7	88 40.9	80 45	74 48.6	68 52.9	64 56.3	60 60
112 32.1	99 36.4	89 40.4	81 44.4	75 48	69 52.2	65 55.4	61 59



## Waving Robot Invites Motorists To Stop for Gas

A ROBOT flags down motorists passing a gas station on the Newton Abbot-Torquay road in England.

A directional mike picks up and amplifies motor sounds to trigger a compressed-air-operated mechanism. An electronic circuit keeps the arm wagging when traffic is bumper to bumper.



## No-Shift Tractor Runs On Motorized Wheels

THIS experimental British diesel tractor uses hydraulic pressure to drive "motors" in the rear wheels. Five cylinders, rotating around a stationary crankshaft, are the spokes. The two motors, connected in parallel, divide pressure between them—as one of the wheels slows down, the other wheel speeds up. A variable-output pump drives oil through the system.



## Los Angeles Lays Out Airport for Modern Jet-Age Transportation

PREPARING for jet and atomic planes, Los Angeles plans a \$50,000,000 expansion of its International Airport. Included in the approved model above of the 228-

acre terminal are six two-level loading and unloading platforms, parking space for 9,000 cars, and new runways to handle up to 120 planes an hour.



# Will NIKE Protect Us

# YES

## SAYS ARMY

***It can reach, outmaneuver and destroy any aircraft either available or under development at the present time, and bat down any Russian bomber in existence or heard about, says Army Secretary W. M. Brucker.***

Named, perhaps optimistically, for the Greek goddess of victory, Nike, a supersonic guided missile that is at present the last-ditch antiaircraft defense of 18 of our most strategic cities, is under hot critical fire. This liquid-fueled missile, about 20 feet long and one foot in diameter, with a disposable booster for hurling it upward to a speed of 1,600 m.p.h., is

**D**EPENDING on the Nike to defend our chief target cities from close-in enemy

air attack is putting our trust in a bust, the Air Force alarmingly declares.

Is that true? Have we spent more than a billion dollars (estimates run as high as four billion) for antiaircraft weapons that can't reach hostile planes before they have dropped their nuclear bombs?

Are we relying on second-rate guided missiles that aren't accurate enough or fast enough to intercept tomorrow's, or even today's, jet bombers?

If the answer to these questions is yes—as the Air Force says it is—then we have thrown away a staggering sum of tax money and lie relatively as defenseless as if we hadn't spent a cent.

But is the answer yes? Only the Defense Department, whose Army developed and mans the Nike and whose Air

Force rejected the weapon as inadequate nine years ago, can say authoritatively. And so far Defense hasn't said, except in feeble words unsupported by any really convincing proof.

**T**HE most optimistic defender of the Nike seems to be Secretary of the Army Wilber M. Brucker. At separate times, he has called it "a deadly missile which can reach, outmaneuver and destroy any aircraft either available at the present time or under development now," and "able to bat down any Russian bomber in existence or heard about."

Army Chief of Staff Gen. Maxwell Taylor considerably watered down Mr. Brucker's reassuring statements, however, by declaring:

"Nike is just, you might say, the four-cylinder edition of a family of weapons which will soon pass into the six-cylinder and eight-cylinder stage."

While we wait for somebody to come up



# from Red Bombers?

# NO

## SAYS AIR FORCE

***Its range is so short that it couldn't intercept and kill an attacking bomber until the plane was almost on top of its target; its ground-based radar controls are vulnerable to jamming; its accuracy is unproved, contend Air Force critics.***

radar-controlled from the ground. It is supposed to be able to destroy any enemy plane within bombing range. Can we depend on it or is it merely giving us a false sense of security?

While America awaits the authoritative answer to this question, which may mean life or death to our nation, we present to readers of POPULAR SCIENCE MONTHLY the status of the Nike today.

with all the facts, we can't be blamed for trying to find out the truth for ourselves.

**W**HAT about the Nike's range? The Army officially has stated that it is "over 25 miles." But the Air Force counters with the fact that guided bombs can be released from planes 50 miles from their targets. Nike B will take care of those planes, the Army retorts.

What is Nike B? It is a greatly improved version of the present Nike, with a vast increase in range and a nuclear or thermonuclear warhead, the Army explains. What will its range be? The Army hasn't been allowed to say, but expert estimates agree that it will be close to 60 miles. That would seem to take care of the planes releasing guided bombs, but is Nike B in production? No. It is still in the development stage.

The Air Force declared that even if Nike B were in production, we'd still be behind the eight ball, because Nike B

can't use the elaborate and expensive launchers and electronic control system now in place for the original Nikes.

Is this true? The Army hasn't been permitted to reply, but a well-informed source has said that the Air Force claim is "scurrilous nonsense"; the launchers were designed with Nike B in mind and a changeover to the new-model "bird" can be made with ease and comparatively light expense.

**W**HAT about the Nike's accuracy? At a demonstration for the press at White Sands Proving Ground, N. M., the Army fired eight Nikes. One developed electronic trouble and automatically blew itself up. Seven were declared to have scored hits. One hit was a bull's-eye.

However, only two Nikes were fired at a drone target moving at jet speed. The first Nike exploded close enough to the drone to pepper its belly with shrapnel and send it parachuting to earth. The



# If Air Force is right...

Then Washington, our nerve center, and all the great industrial cities vital to mounting counter-attacks are vulnerable to H-bomb raiders.



Army scored that as a hit, and said that the second Nike would have hit the drone if the first one hadn't already done so.

The other Nikes were fired at slowpoke drones that could travel no faster than an early World War II bomber. All of these drones received shell-fragment wounds and one of them was hit squarely and destroyed. No drone flew an erratic course, as an attacking plane would.

In fairness to the Army, it must be pointed out that these target drones were scarcely one-tenth the size of a probable enemy bomber. On the other hand, they were moving less than one-third as fast as that bomber would be traveling.

Realizing that this demonstration of the Nike's accuracy was not impressing its watchers, the Army explained that the weapons had been fired successfully at

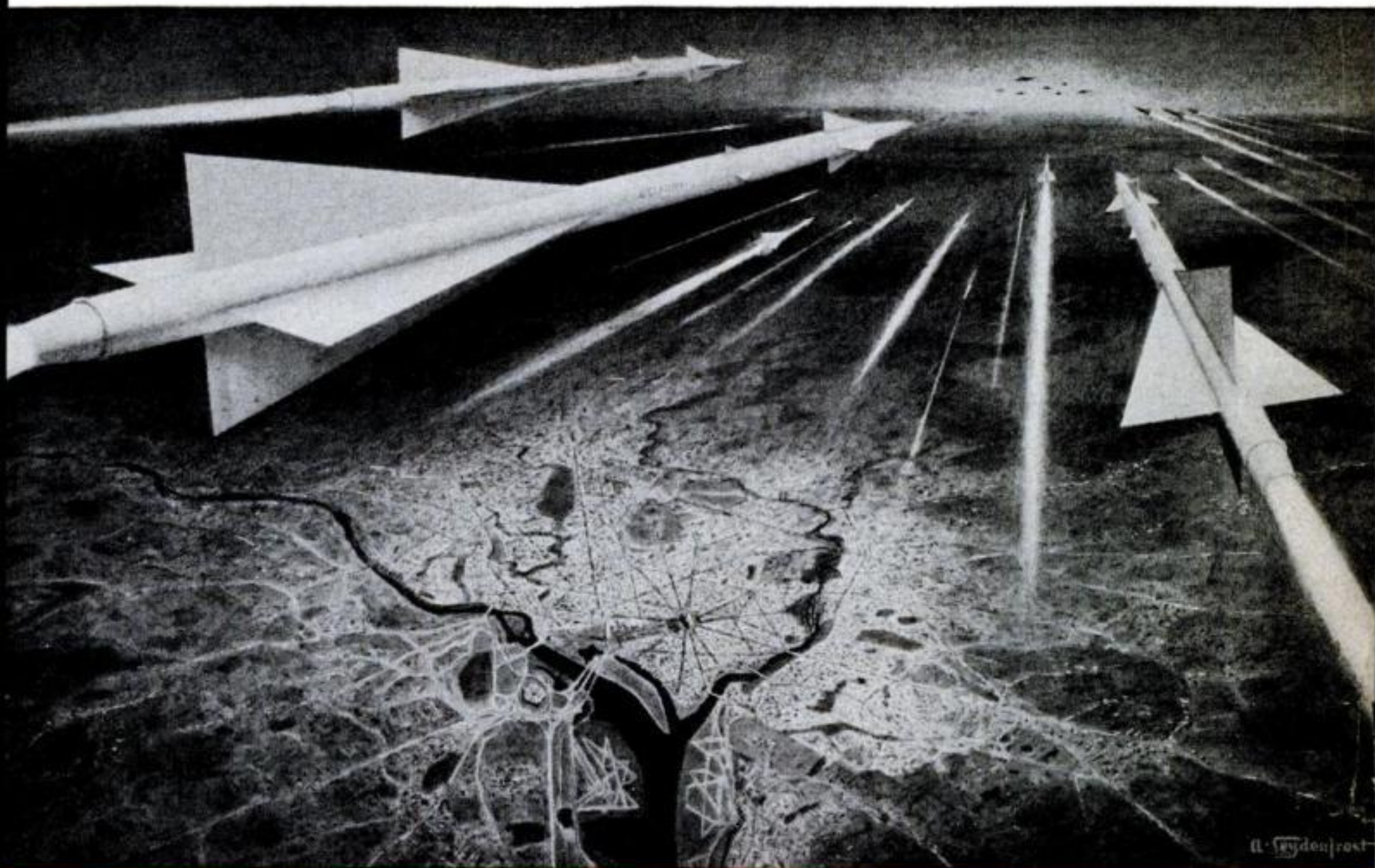
many types of jet aircraft as fast as anything in the skies today.

**H**AD the planes been destroyed? Not actually, of course, the Army said, but its technicians had convinced themselves that they could have been. You see, it is possible to adjust a Nike's internal guidance system so that it makes a deliberate, specific error in responding to an electronic command. A crew can then fire the bird at, say, a B-47 with the assurance that they will miss it by a safe but predetermined distance. They can also measure the area of the burst when the missile's warhead explodes. Therefore, all they have to do is subtract the margin of error that they set into the missile's guidance system to find out how much damage the burst *would have done* if the missile had been set accurately.



# If Army is right...

Attackers that sneak through our screen of defending planes will be safely destroyed, regardless of height, speed or evasive action, before they can loose bombs.



Using this technique, the Army says it has proved, to its own satisfaction, that it could "bat down" anything that flies today or is likely to fly in the near future.

But the Nike is controlled from the ground, by radar. An enemy would unquestionably try to jam the radars. What, asks the Air Force, becomes of Nike's accuracy then?

What we ought to have, the Air Force says, is an antiaircraft missile with a homing device in its nose. Such a missile would unerringly and automatically close on its target, invulnerable to jamming and independent of ground controls.

That makes sense. Does the Air Force have such a missile? Indeed it has. The Navy-developed Talos. What is the range of the Talos? About 60 miles. But is it in production? No. Are there any launching installations for it? No.

**W**HAT about the Nike's speed? There doesn't seem to be any ground for Air Force complaint on that point. Within a few seconds after firing, a Nike reaches a speed of around 1,600 m.p.h., fast enough to intercept anything that is likely to be flying for some time to come.

But will the Nike protect us from attack by the Reds?

Yes, if you are willing to take the Army's word for its effectiveness, but so far few outside the Army are convinced.

No, not if an attack should come right now, for even if we ignore the Air Force's sharply expressed doubts about the Nike's accuracy within its range, no one has disputed the Air Force statement that bombs can now be released 50 miles from their targets. No Army spokesman has stepped forward to maintain that today's Nike can shoot that far. **END**





## Radio Fisherman Goes

***Using an antenna instead of a rod, Ed Phillips sends his model tug to catch and play the fish.***

**F**ISHING by radio sounds like a lazy man's dream, but it's too much fun to sleep through. Without stepping off dry

land, Edward F. Phillips, of Newington, Conn., can head his model tugboat out where the big ones are. By fingering a transmitter button he can turn, stop, back up or drive the boat full speed ahead to play a hooked fish.

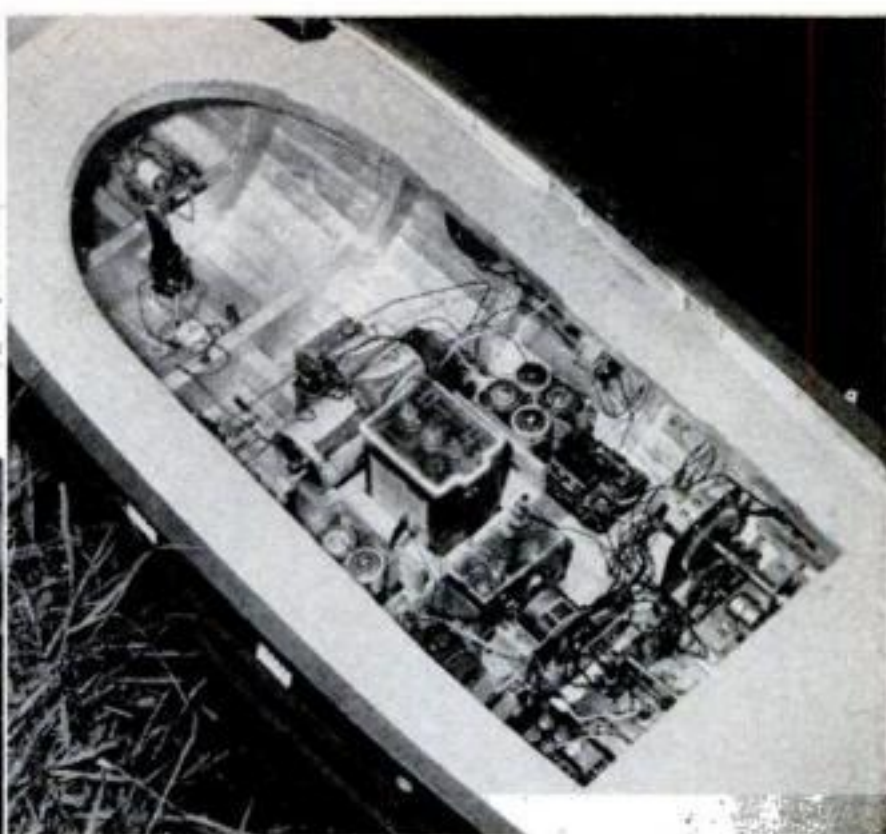
An electrician by trade, Phillips has





**AN AUTOMATIC REEL** is mounted on the after-deck. The 6-lb. line passes through a tip eyelet on the stern rail. A fish hitting the lure can pull out line, but spring reel hauls it back in as the fish tires out. A block on the line stops it before the 10-foot leader is reeled in.

**SKILLED MODELMAKING** is evidenced by such details as furniture, a midget fan, chronometer and compass in the chartroom and captain's cabin. Extinguishers are made of lipstick cases.



**ENGINE ROOM** is crammed with both dry and storage batteries, a large drive motor and two small auxiliary motors for steering and changing speed, and four control relays. The hull frames were cut from plywood and planked with wooden strips from window blinds.

**DECK DETAILS** are compounded of common materials and uncommon ingenuity. Rails are welding rod, portholes old spark-plug gaskets, fenders toy auto tires. Parts came mostly from scrap.



## Trolling from Shore

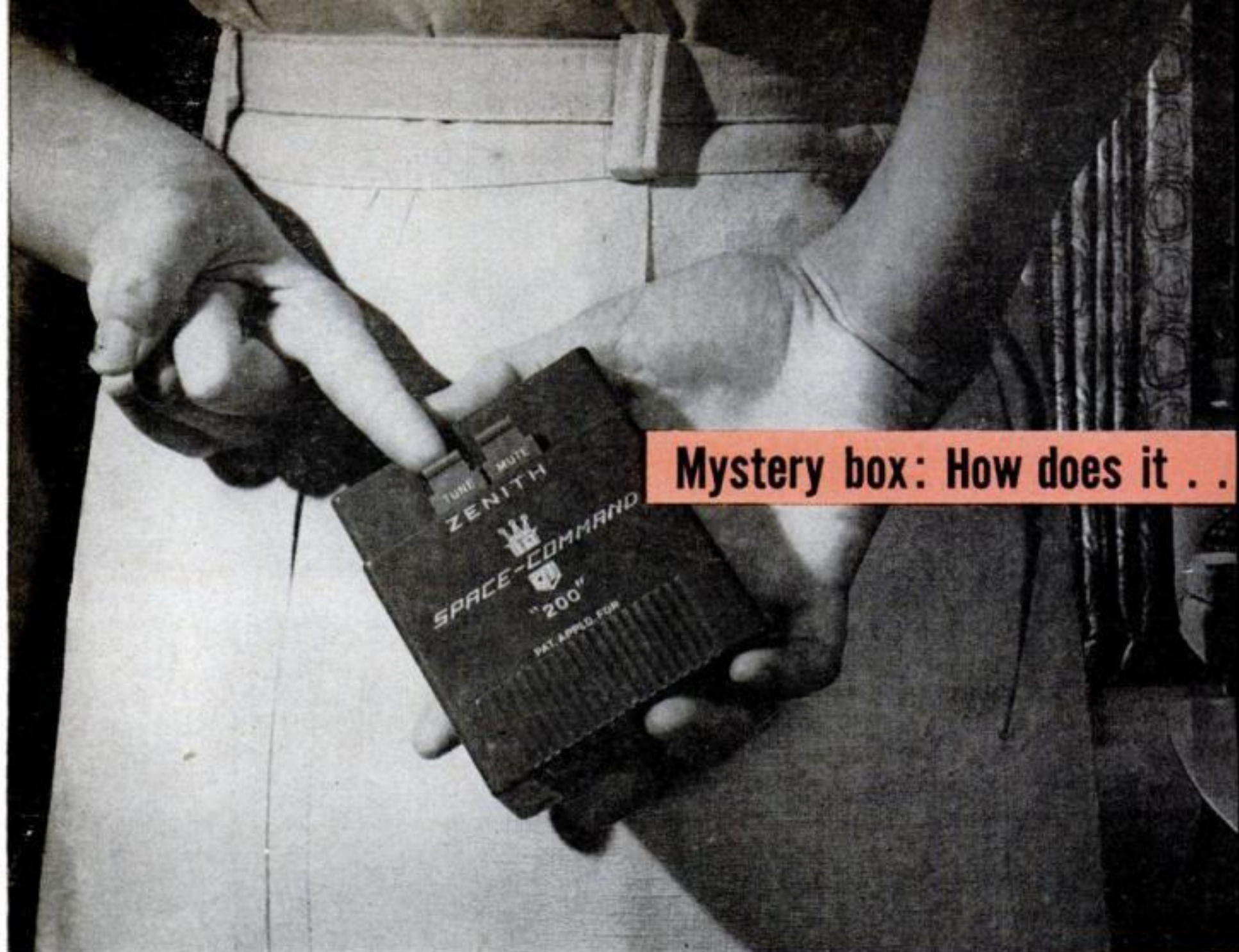
invested a year's spare time and about \$100 in the *Beatrice M*, a five-foot craft controlled by a single-channel transmitter on the 27-megacycle citizens' band.

Short taps on the single control button swing the rudder. At extreme left rudder the main motor shifts to full

speed; at extreme right, to slow speed. A horn sounds at both extremes to tell the operator what's doing.

Slightly longer signals are used to start, stop and reverse the tug. In reverse, instead of the horn honking a bell rings at both rudder extremes. **END**





**Mystery box: How does it . .**

# New Electrical Wonders

***How do they work? Take a look inside the wireless TV control, switchless lamp, cordless clock.***

**By Martin Mann**

**A** MAZE your friends! Just look at the TV and make it change channels or silence the commercial—while your hands are in your pockets. Make a lamp light when you wave your hand and mutter abracadabra. Lift the electric clock, its second hand sweeping merrily—but look, no wires!

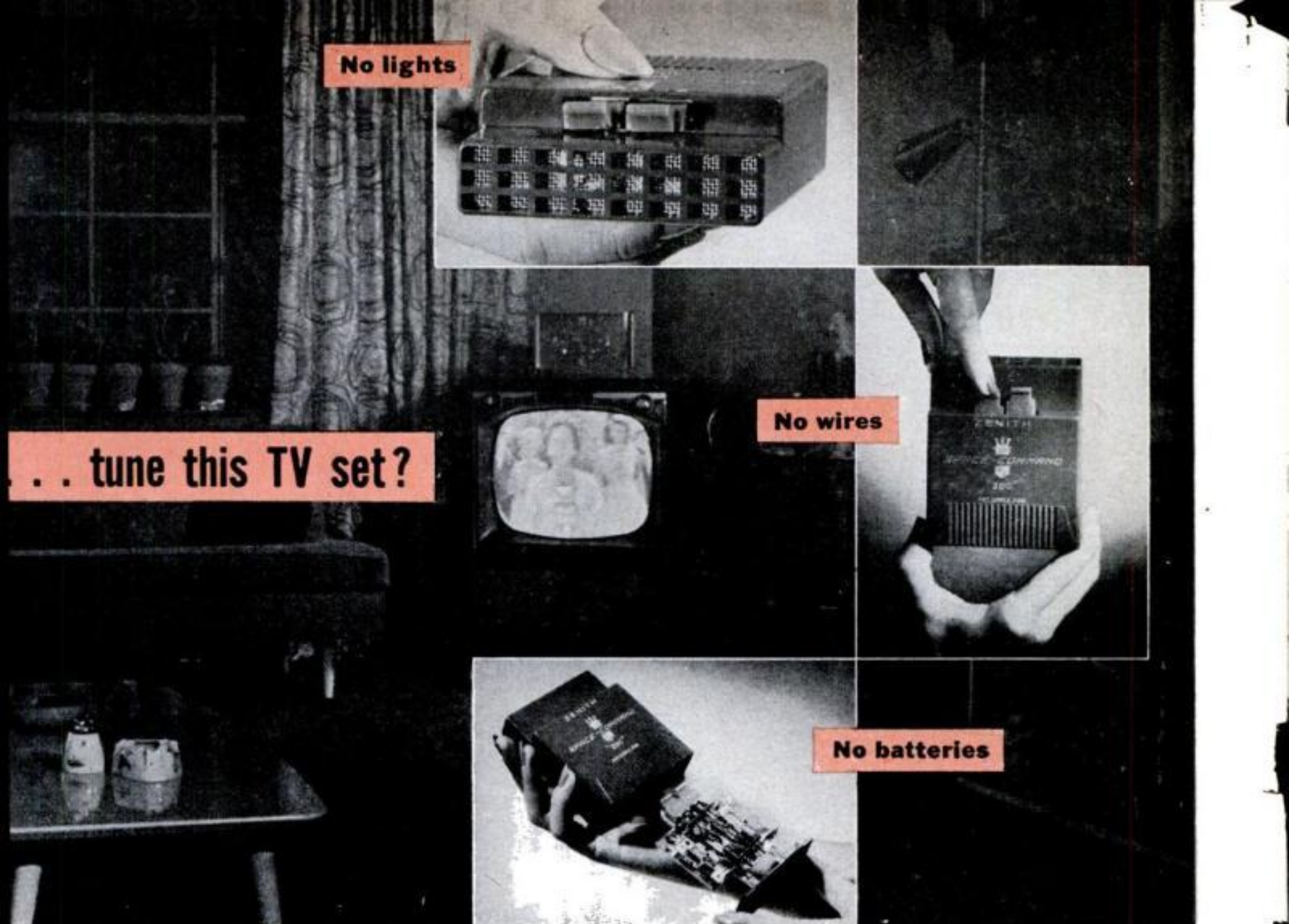
Magic? Yes, sir. But not the kind you laboriously rig up yourself. These are new commercial marvels, available in stores around the country.

***Take that TV trick.*** A more mystifying act of electronic wizardry never helped a TV salesman con a shopper out of several hundred bucks. The gimmick is a remote-control unit small enough to fit in your pocket. When you push a button, the TV set changes channels. Another button lets you silence the commercials.

This eerie control works, we found, even if held behind your back, in your pocket, or at the other end of the room from the TV. You don't have to aim it at the receiver.

It has no wires, no tubes, no batteries, no electricity at all. The manufacturer, Zenith, solemnly assures that "it emits no radiation harmful to human beings."





No lights

... tune this TV set?

No wires

No batteries

# Work Living Room Magic

*We took one apart*, and by gosh they're right. It won't even harm dogs or cats. Inside the case are some metal rods, similar to the tuning forks that piano tuners use. The push buttons release tiny hammers that strike the rods and make them ring, in ultrasonic tones so high in pitch that they cannot be heard. These sound waves vibrate about 40,000 cycles per second, twice as high as the shrillest note people can hear, and too high even for dogs—we tried it.

The television receiver that dances to this silent music has a microphone to pick up the ultrasonic tones, and a five-tube electronic brain to amplify the signal and figure out what you want done.

*The five-tube brain* separates the sig-

nals according to their frequency. The muting signal goes to a tricky relay that turns a toggle switch off if it's on, on if it's off. The station-changing signal works another relay that, in turn, puts an electric motor and gear train to work turning the selector knob.

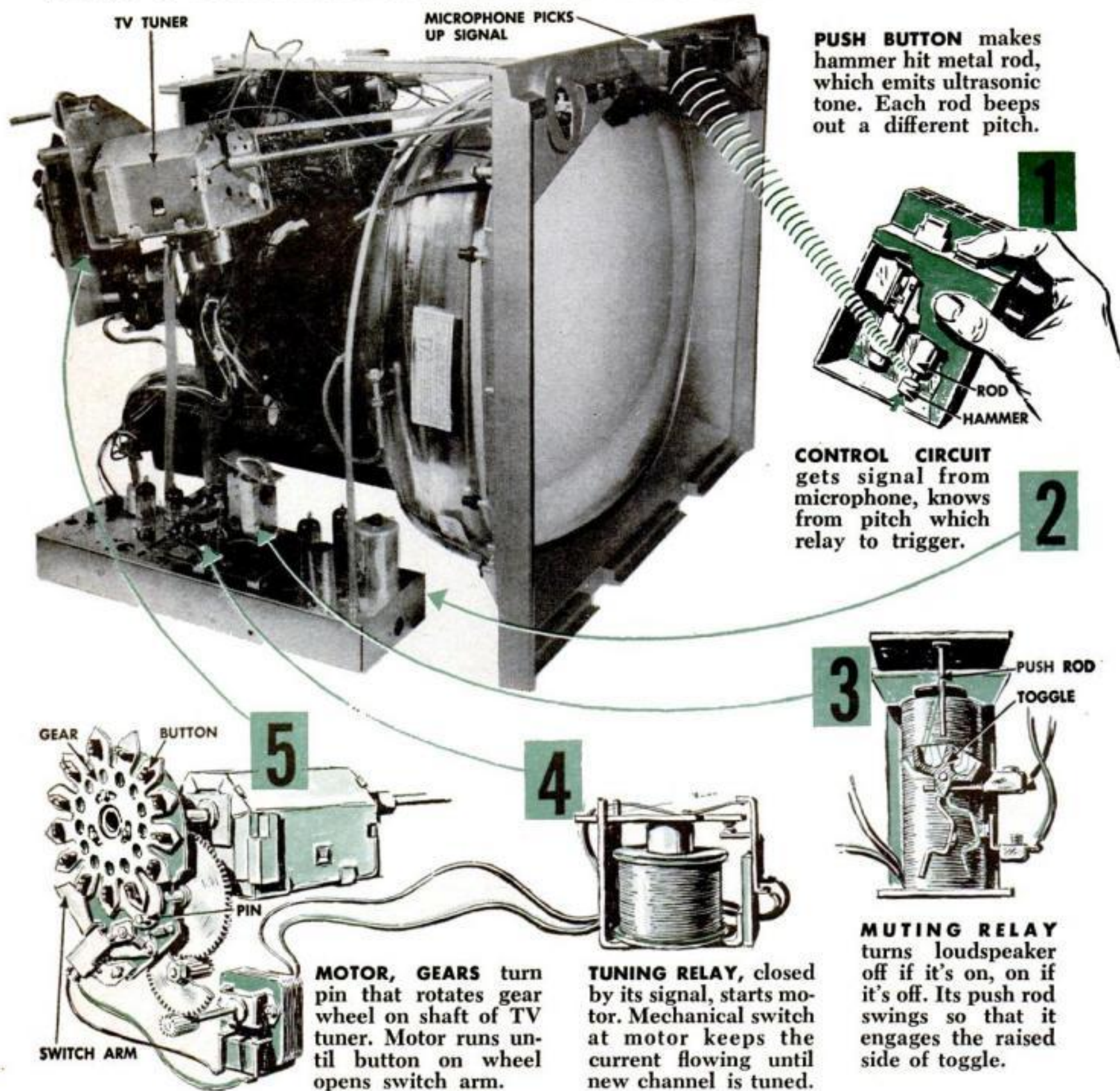
Rube Goldberg himself might have invented that one. You can show off this kind of wizardry for \$250 up.

*The "switchless" lamps* really have switches, of course. They're new kinds that don't look at all like switches. The trickiest is called Touchtron. You touch your hand to the lamp base and the light goes on; touch again and the light will go off.

The secret is a vacuum tube, relay and



## Beeps of silent sound control this television set



condenser inside the lamp base, plus a metal ring that looks like decoration around the lamp. The tube stays on all the time but burns only 10 cents' worth of electricity a year. Ordinarily it will not let enough current pass through to throw the switching relay. But when you touch both the lamp base and the metal ring, your hand completes a circuit. This decreases electrical impedance, the tube passes more current, the condenser fires, and the relay switches the lamp on (or off). There is no shock hazard.

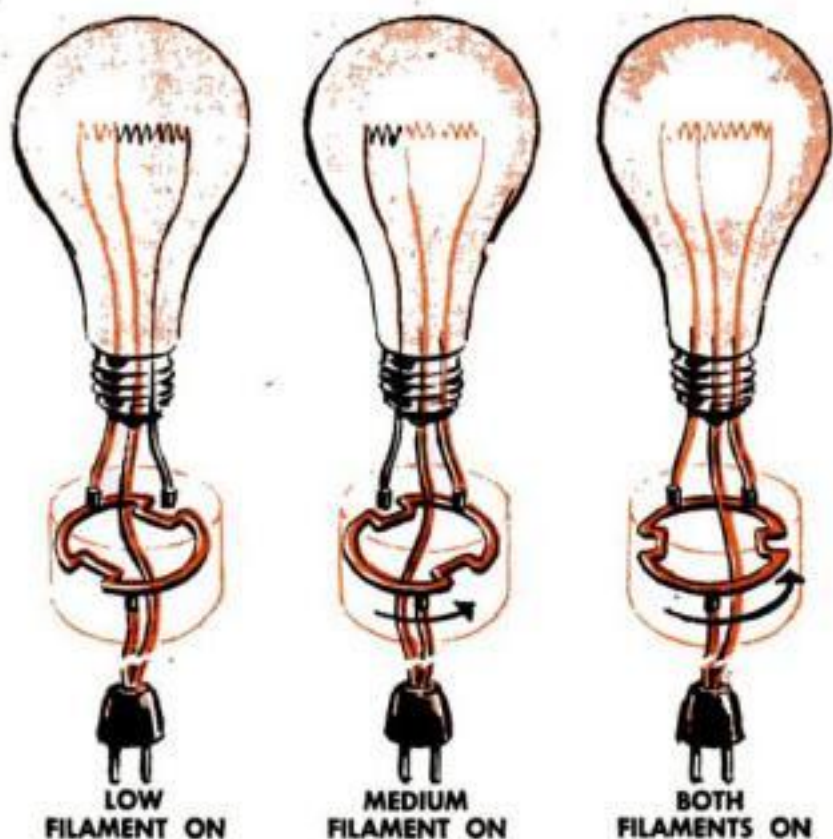
**Another new switch** adds convenience

to three-way lamps, the ones with bulbs that go low, medium or bright. Called a drum switch, it fits on any narrow part of the lamp body; it is not part of the socket and you don't have to reach under the shade to work it. It also operates in either direction—no more switching through the whole cycle to get the brightness you want.

The GE drum switch and the electronic Touchtron are available on numerous brands of commercial lamps, but neither is yet sold separately in hardware stores for homemade lamps.



**Lamp gets bright, brighter, brightest with turn of drum**



**DRUM SWITCH** becomes part of lamp body, lets you control bulb without reaching up under the shade for the socket. Moving part (left) is a metal ring that touches alternately either one or both of bulb contacts, giving low, medium, high brightness. Fourth position (not shown) makes no contact, turns lamp off.

If you want a lamp that lights without any attention at all from you, a little plastic box does the job. Plug box into wall outlet, lamp into box, and the lamp goes on at dusk, off at dawn.

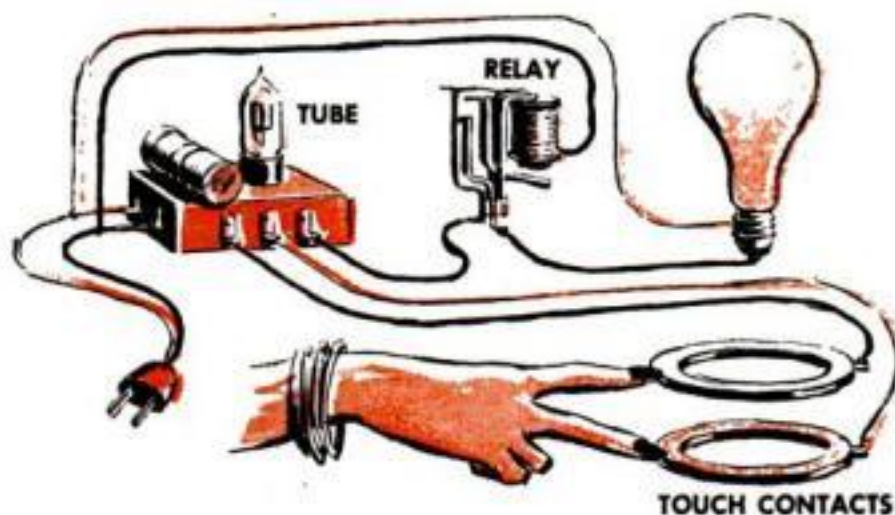
**This magic box** contains a photoelectric cell, a small wafer that conducts electricity well when light shines on it, not so well when no light hits it. During daylight, it passes enough electricity to hold open a relay, so that current cannot reach the bulb. When daylight dims, the photocell blocks current flow to the relay coil, the relay contacts snap shut, and the

lamp lights. The photocell must be mounted at a window facing outdoors, but the lamp can be anywhere that its cord will reach.

Automatic switches of this type have long been used to control street lights. The home unit is now made by Fisher-Pierce Co., Boston 85, and costs \$15.95.

**The cordless electric clock** uses the kind of magic that comes to real money. The clock costs \$195, plus tax, and it won't keep better time than a four-buck kitchen clock with wires. But its eerie operation really triggers your take-it-

**Magic touch is all it takes to make this lamp switch on or off**



**ELECTRONIC SWITCH** operates when fingers bridge two separated metal parts of lamp base. Hand lowers electrical impedance of circuit, permitting a vacuum tube to pass enough current to trigger a relay. The relay contact latches in the position it is pulled to—one impulse snaps it on, the next impulse snaps it off.

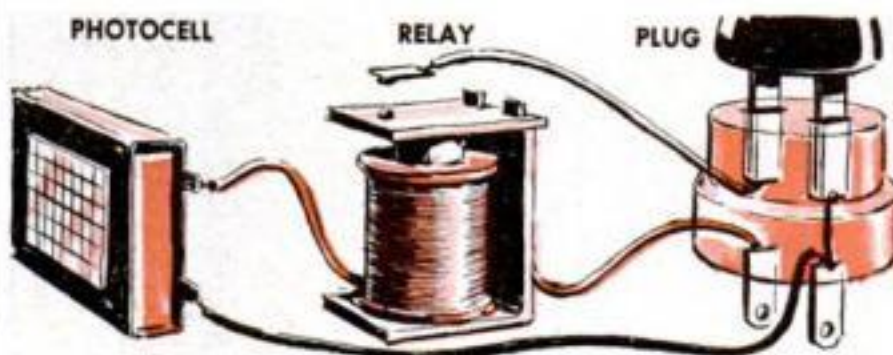






## You needn't even touch this lamp switch—it works itself

**PHOTOCELL SWITCH** turns lamp on when you need light, off when you don't. Box at house window contains a light-sensitive cell that increases its electrical resistance when less light hits it. Dimming daylight reduces current flow to a relay, letting contacts snap shut and turn the lamp on. Increasing daylight at dawn increases current flow and forces the switch open.



apart instinct. Only after considerable prodding from PSM would General Electric declassify the details.

The wireless clock is wireless—it's radio-controlled. It does not depend on signals from ordinary radio stations, but on the 60-cycle electromagnetic waves that are always radiating from ordinary wiring and appliances.

Inside the clock case is an antenna—just like the ones in small radios—that picks up the 60-cycle radiation and feeds it to an amplifier. But a whole raft of amplifiers couldn't boost the airborne signal enough to drive even the flea-power clock motor. That's where the trick comes in.

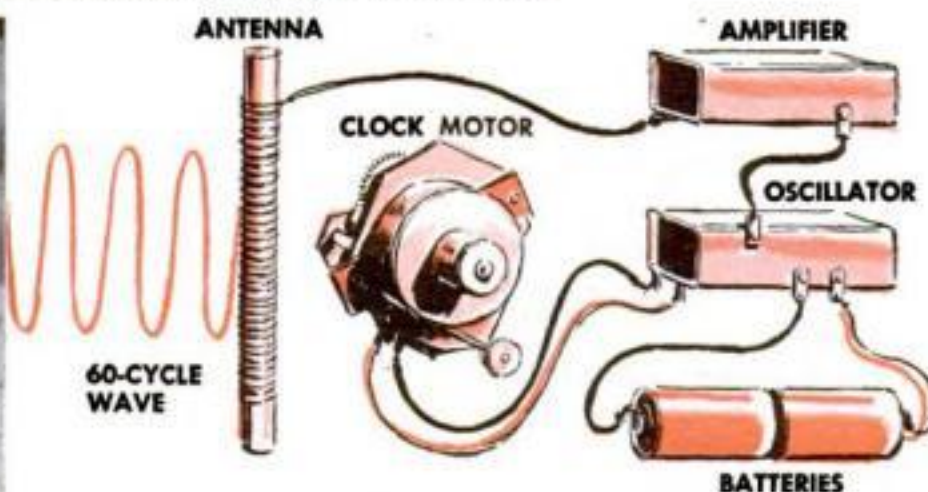
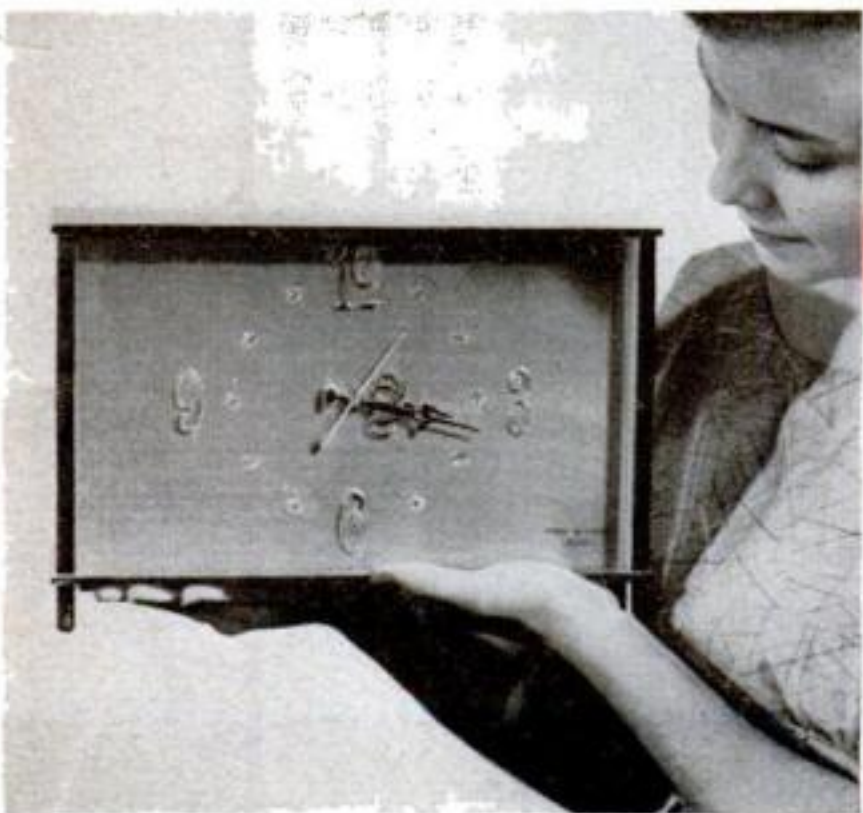
The amplified 60-cycle signal controls the frequency of a battery-powered local

oscillator. Now the oscillator frequency may vary, but the power-line frequency picked out of the air won't. So the two mesh, and the oscillator locks in with the 60-cycle radiation from the air.

The oscillator output drives a synchronous clock motor. That way the clock motor, although battery-operated, gets 60-cycle power just as precisely regulated as the house current that runs ordinary electric clocks.

*What will they think of next?* The electronic wizards are busily contriving still newer magic to pop the customers' eyes. The trick we'd like to see is a TV control—with or without wires—that not only picks out the programs but also tells you in advance whether or not the show is going to be any good. **END**

## For \$195 you can have an electric clock without wires



**CORDLESS CLOCK** runs on batteries but has precisely controlled AC synchronous motor. The batteries power an oscillator. To hold oscillator exactly at 60 cycles for good timekeeping, its frequency is locked in with the 60-cycle power-line frequency by electromagnetic waves that are picked up from the air. The 60-cycle waves are stray radiation from house wiring.



## Grand Prix Game Tests Players' Skill at Driving

THINK you can do better at Sebring or Watkins Glen than a Cunningham or Spear? Here's a chance to prove you can handle a Ferrari or Jag with the best.

Grand Prix, a racing game by Wright-Mudge Enterprises, Inc., of Fairfield, Conn., is a test for sports-car fans on authentic reproductions of road-race courses. A card game, it requires skill in actual racing situations.



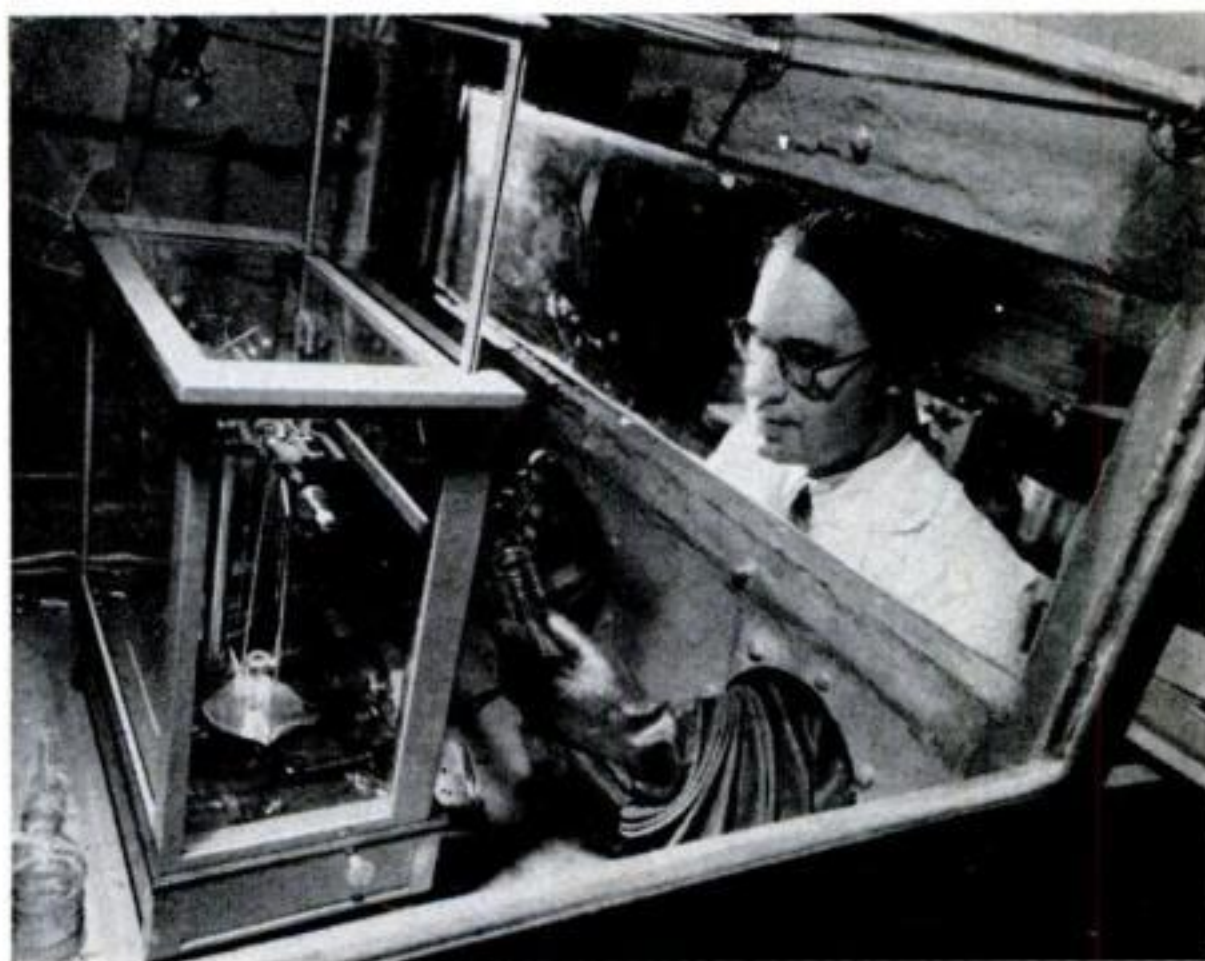
## Energy from Sun Runs Model Aircraft Carrier

THIS model carrier skims over the water under sun power. Four silicon cells on its deck convert solar energy into electricity to turn the prop. The model was exhibited recently by Hoffman Electronics Corp., Los Angeles.

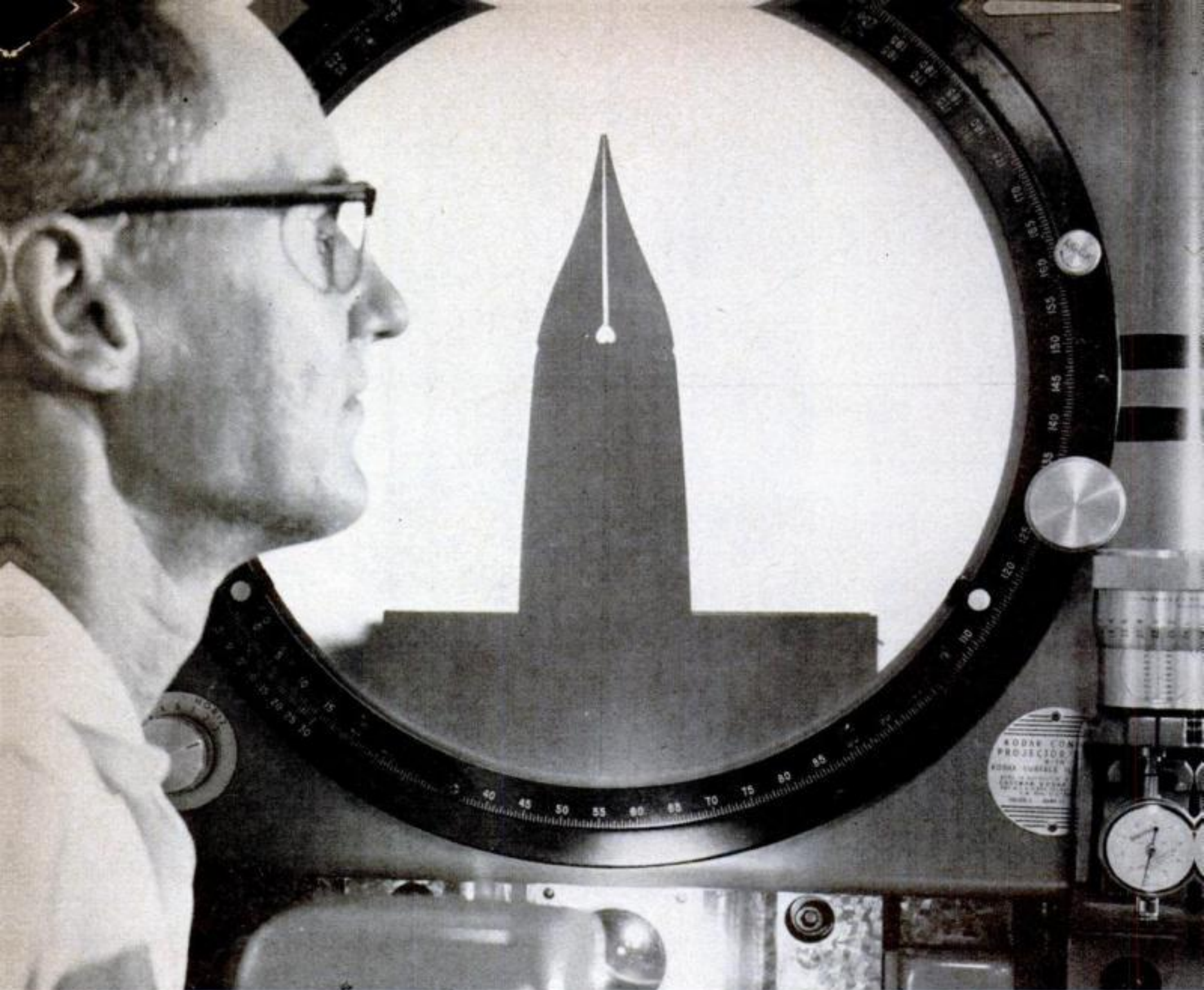
## "Plastic" Magnet Has Super Power

A NEW method for producing highly purified manganese bismuth has led to the development of magnets 10 times more permanent than most of those now in use.

So combustible that it must be handled in a helium-filled glass chamber, as at right, the Westinghouse substance is made as a powder and molded in plastic. It can then be cut to any shape, including thin wafers.





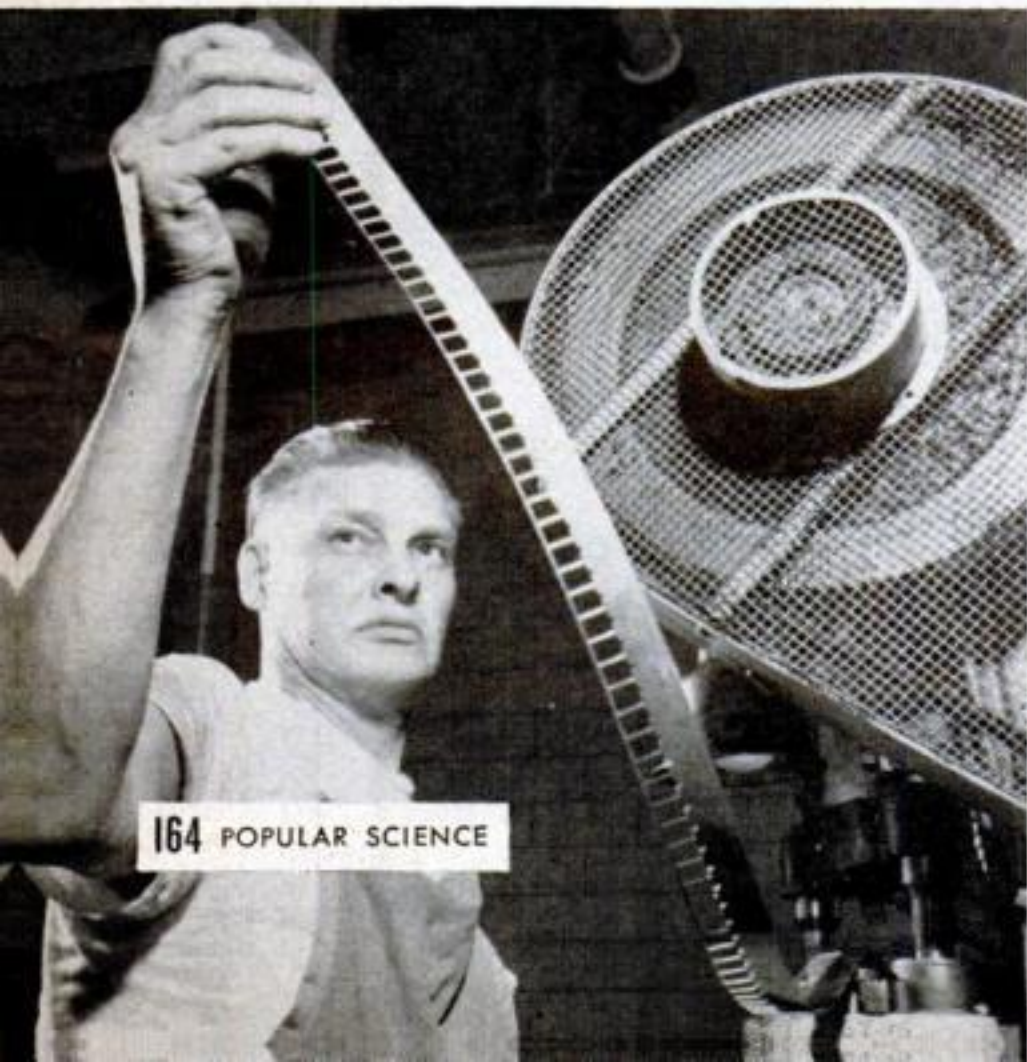


**HIGHLY MAGNIFIED IMAGE** of the business end of a fountain pen, shown under inspection with

the aid of a projector, serves to check the width of the slit cut in a fountain-pen nib.

**STRIP OF 14-KARAT GOLD** goes through a punch press that stamps out blanks for penpoints. Photos on this and the facing page were taken in the Sheaffer plant at Fort Madison, Iowa.

**GRINDING AND POLISHING** four penpoints at once, machine performs what once were hand operations. Shown being adjusted, it's an example of recent advances in pen making.





# Things You Never Knew About Your Fountain Pen

**A leaky 1884 pen let loose the flood tide of American ingenuity that has kept the world writing.**

**By Richard Match**

FROM Murmansk to Timbuktu the American fountain pen, streamlined, durable and leakproof, is a symbol of U.S. technological excellence. After World War II our trim Parkers, Sheaffers, Watermans, Eversharps brought \$400 each on the black market overseas. Today Japanese and Italian street vendors hawk shoddy counterfeits; the Russians turn out imitation Parker 51's which cost more than the real thing. But American manufacturers make 75 percent of the world's output—some 200 million pens a year.

The ubiquity of the American fountain pen still surprises even its export-minded makers. Before V-J Day, isolated Chinese and Burmese guerrilla outfits solved the

medal shortage by awarding American fountain pens in lieu of decorations for valor. A *New York Times* correspondent tells of a British diplomat, some years ago, negotiating a treaty with a tribal chieftain at a remote North African desert outpost. When the time came for the formal signing, Her Majesty's envoy produced an inkwell and an old-fashioned dip pen. Signing his name with a blotchy flourish, the diplomat proffered his pen to the Arab leader. "No, thanks," said the Bedouin, "I have my own." From his bur-noose he drew forth a two-tone American fountain pen, inked a fingertip and solemnly affixed his thumbprint.

**Egyptian "dream" pen.** The idea of a pen that could hold its own ink supply is one of writing history's oldest, most elusive dreams. Archaeologists have dug up a "fountain pen" of sorts—a hollow reed into which ink was poured—from an Egyptian tomb sealed around 4,000 B.C. But the fountain pen we know today is a

**LIKE CANDLES** on a birthday cake, penpoints go on plating rack. Masked with rubber, they'll be immersed in tank to get hard coating of palladium, from "heart pierce" to tip of point.

**IN FADE-O-METER**, dazzling artificial sunlight quickly checks light-fastness of colors for plastic pen barrels. This device also serves to test the permanence of liquid and ball-point inks.





monument to a middle-aged New York insurance salesman named Waterman.

In 1884 Lewis Edson Waterman, like every smart salesman of his time, carried on his watch chain a collapsible steel dip pen and a stoppered portable inkwell. This arrangement delighted no one but dry cleaners. Various so-called fountain pens, crude affairs with built-in ink reservoirs, had by this time appeared on the market and Waterman bought himself one. Soon afterward, as one of his prospects was about to sign an application for a large policy, Waterman tendered the fountain pen. Then came the deluge. The pen flooded the document, and Waterman's testy customer gave his business to a rival agent.

**"Controlled leak."** Sorely wounded in pocket and ego, Waterman quit life insurance and applied his natural mechanical talents to the invention of a practical fountain pen. It was easy enough to devise a built-in reservoir, but no pen had been invented that would deliver ink in a continuous flow, or "controlled leak," starting and stopping as required by the writer.

To ensure steady ink feed, Waterman decided to apply the principle of capillary attraction. He made a hair-thin fissure or capillary channel to lead ink to the penpoint, plus another channel to admit air into the ink chamber so that internal air pressure was balanced. Capillary attraction—the phenomenon that makes liquid ignore gravity when confined in narrow channels—keeps the ink from leaking out, except when the penpoint is in contact with some object. Patented



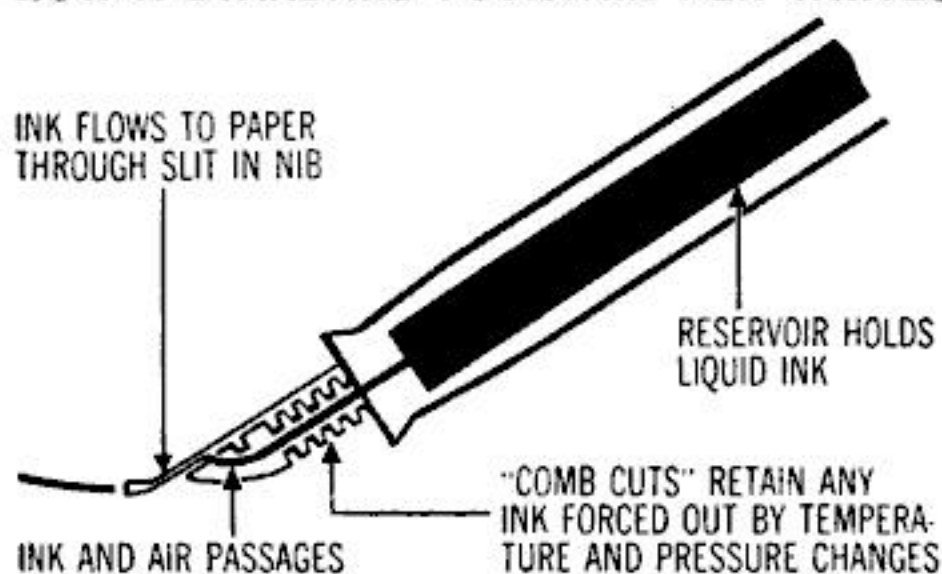
**LIQUID-INK CARTRIDGE** refills fountain pen without getting fingers inkstained. Several makers have introduced cartridge-filled pens, illustrated by the Sheaffer model in the photograph above.

in 1884, Waterman's famous "fissure feed" pen worked so well that its principle of ink control is still used in all fountain pens except ball points.

A fine fountain pen is a precision instrument requiring expert hand craftsmanship on tiny parts, sometimes fitted to tolerances smaller than those of a good watch. A typical conventional fountain pen has 36 parts and its assembly entails 300 operations. The penpoint or nib must be shaped with microscopic accuracy if the pen is not to leak, and is still preferably made of gold, which resists ink corrosion better than any base metal. Where it touches the paper, however, the point is tipped with a speck of extremely hard metal such as osmium, palladium, ruthenium or iridium—members of the rare and expensive platinum group.

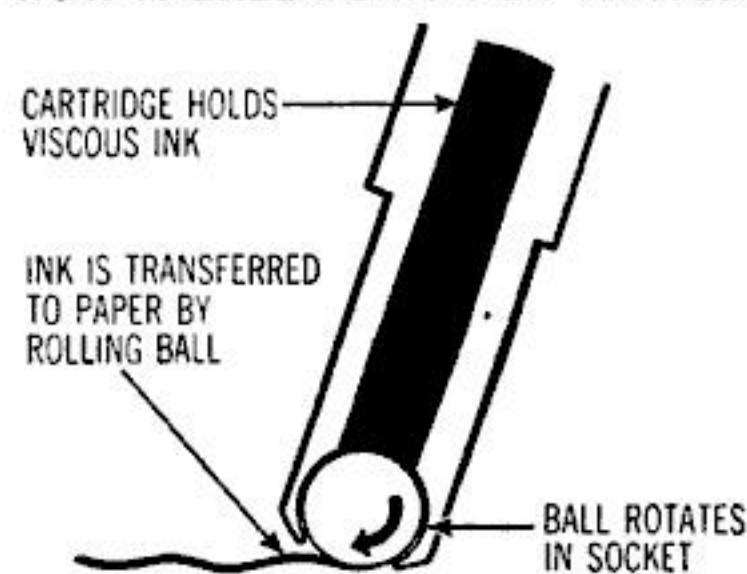
Ball points today account for four-fifths of our annual output of fountain pens. But Americans still buy about as

## HOW A STANDARD FOUNTAIN PEN WRITES

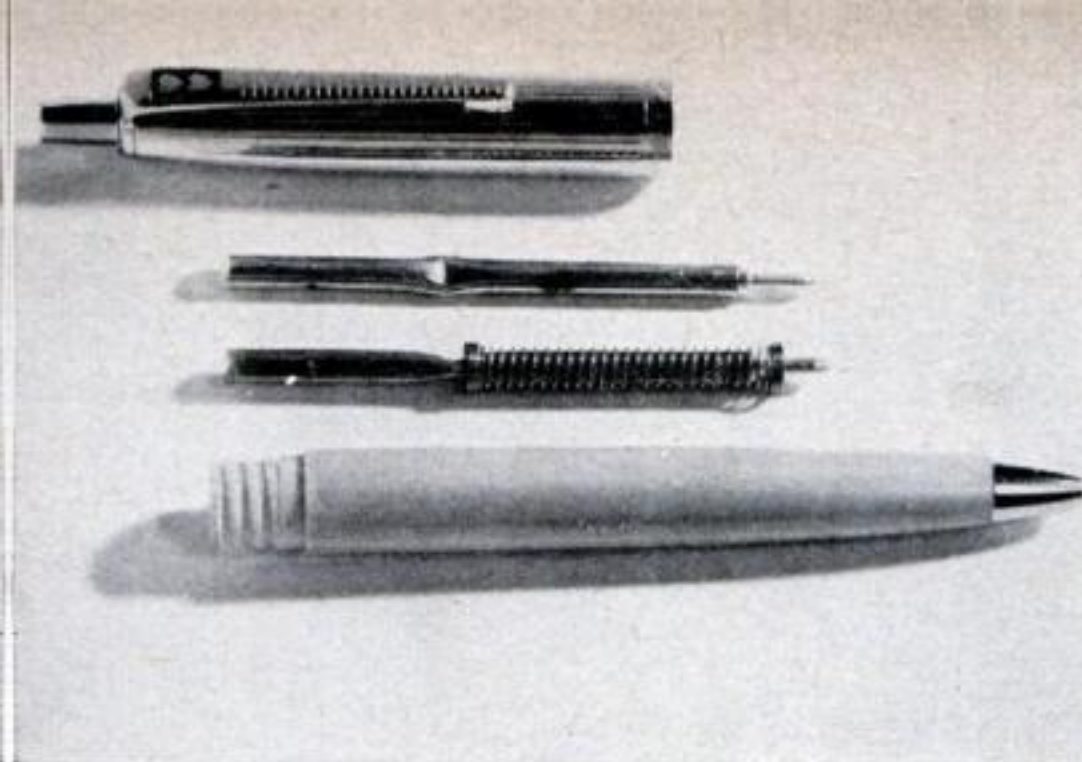


166 POPULAR SCIENCE

## HOW A BALL-POINT PEN WRITES







**PAPER MATE'S** newest ball-point pen has "Piggy Back" refill. Twin ink tubes, each with own ball point, fit one atop other for use. When one is empty, switching them renews the ink supply.



**"SNORKEL PEN,"** a Sheaffer innovation, extends a retractable tube from its point to suck up ink, when barrel is twisted. Extended tube is magnified here several times its actual size.

many old-style liquid-ink pens as they ever did, many users preferring the flexibility, expressiveness and individuality of the conventional penpoint.

**For lefties, too.** At present you can choose a stock-model fountain pen from over 30 nib styles, running the handwriting gamut from the "accountant's hairline"—thinner than paper—through the "executive stub" and on to a "paintbrush" nib made for writing Chinese ideographs. There is even a left-handed pen, its nib especially ground to avoid scratching when it's held by a southpaw.

Once you've broken in your pen to your writing style, true pen artists urge you to reserve it for personal use. Another hand may change the "set" of the point, they say. Mary Roberts Rinehart, for example, writes with a 25-year-old favorite pen that no one else is ever permitted to touch.

**Ball-point boom.** Only four years after Lewis Waterman's invention, one John Loud applied in 1888 for a U.S. patent on a ball-point pen. But technical bugs stood in the way until 1945. Then, with a new design, the ball point zoomed to popularity and was hailed as the post-war "successor to the fountain pen."

Two years later the bubble burst. Fifteen-dollar price tags were slashed to 15 cents, but no one wanted the pens.

In a ball point, a ball revolving in its socket wipes thick, gelatinous ink from an inner reservoir onto the paper. The

trouble was with the ink. It clogged, jammed or skipped; it rubbed over paper, wasn't water-fast, disappeared after exposure to sunlight. Moreover, a moist thumb could lift a signature and transfer it to another check or document. Forgers rejoiced. Some banks refused to honor checks signed with ball points.

Rescue for the industry came by way of a Hungarian chemist, Fran Seech, who had escaped from Nazi-occupied France and made his way to Los Angeles. Fired from a job with a ball-pen company when disaster hit the business, Seech rented a cubbyhole "laboratory" and attacked the ink problem. In 1949 he discovered the secret formula which, experts agree, saved the dying ball-point industry.

**It stayed put.** A young San Francisco businessman, Patrick J. Frawley Jr., secured the rights to Seech's untried new ink and began making a new ball pen which he called Paper Mate. Fortified with Seech's quick-penetrating ink, Paper Mate writing stayed put, neither blotted nor smeared. Frawley launched a spectacularly successful advertising campaign to win back the confidence of disillusioned buyers.

Free ball points were mailed to school principals and bank presidents. Full-page ads informed the public that "Bankers Approve." TV comics joked about Paper Mate's "70,000 words without re-

[Continued on page 278]





## Outboard Watercycle Skims over Waves at 25 M.P.H.

LIFTED on miniature hydrofoils, this water "motorcycle" hits 25 m.p.h. and goes into a 45-degree bank without skid,

says Hydrocycle, Inc., Madison, Wis. A 10-hp. outboard powers it. Future models will be faster, more streamlined.



## Boat Compass Lights Up at Night

THIS little compass for small boats rides in a ball-and-socket bracket, gives steady readings in rough water, and has a built-in light. It is made by Taylor Instrument Companies, Rochester, N. Y.



## Assemble-It-Yourself Outboard Has All-Purpose Power Head

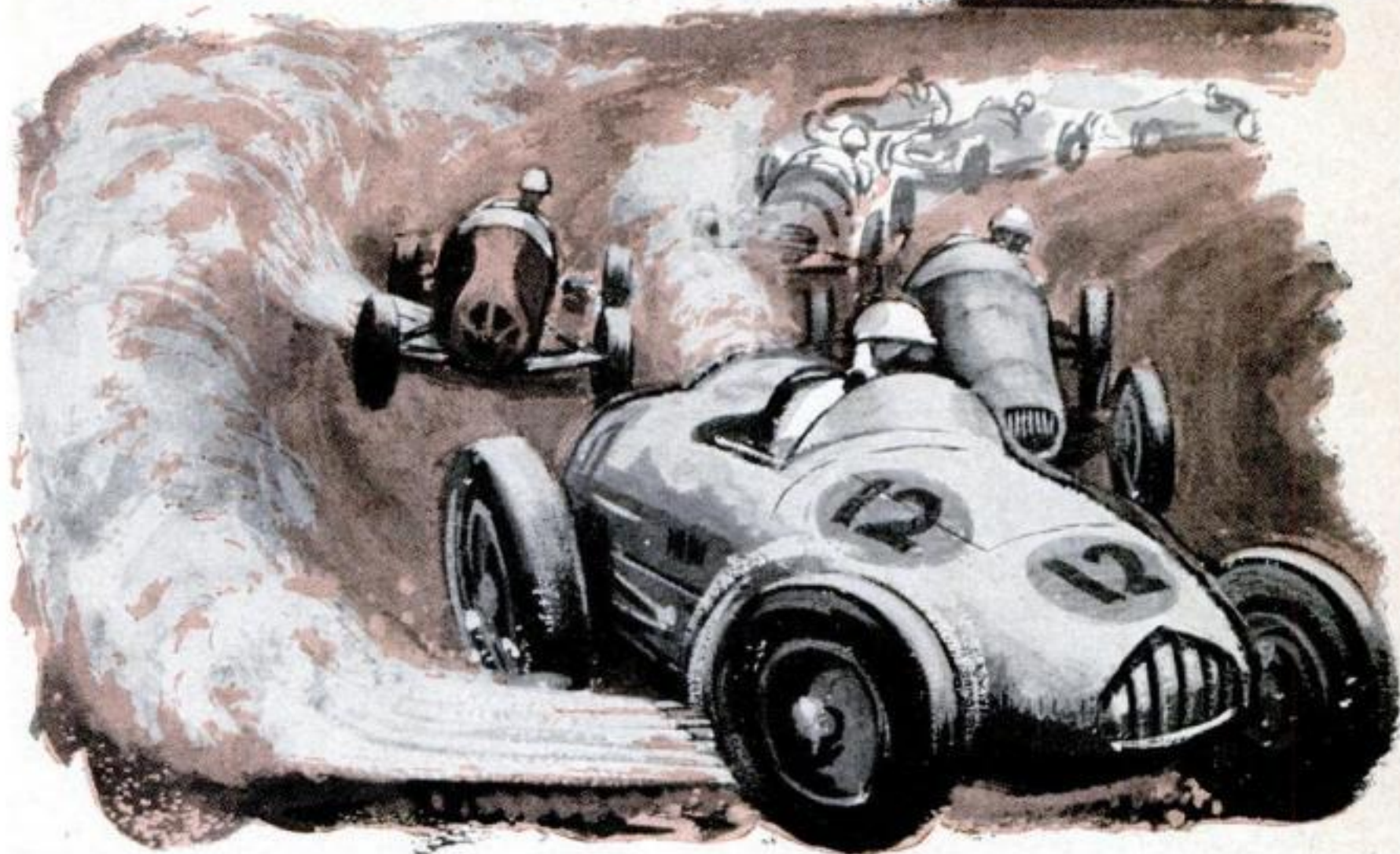
OUTBOARDS now come in kits. This 2½-hp. model, capable of driving small hulls up to eight m.p.h., can be assembled at home with a screwdriver and a wrench. At around \$60, it can save half the price of a factory-completed job. In addition, you can detach its engine and use it on

a special power-takeoff mount to run a mower, generator, pump or saw.

The air-cooled, two-cycle, one-cylinder motor has a 1⅝-inch bore and stroke. It winds up to 3,750 r.p.m. The outboard is a product of Continental Mfg. Corp., Culver City, Calif.



# New Ideas from the Inventors



**1 Jets to Boost Car Speed.** Expelling exhaust gases through steerable nozzles—according to this Daimler-Benz patent—could increase a car's speed and

roadability. On straightaways, jet thrust would help propel the car; going around curves, outward-turned nozzles would brace it against centrifugal force.

**2 Bottle to Form Its Own Straw.** Liquid and gas sealed into this giraffe-necked container would stiffen its flexible—but non-elastic—walls. To drink from the bottle, you would break the neck seal and squeeze the liquid into your mouth through the drinking tube on top.



**3 Motorized Pouch to Fill Pipe.** With this reloading device on his dashboard, a pipe-smoking driver could fill his brier without taking his eyes off the road. Inserting a pipe in the base would energize the unit causing it to discharge and tamp a bowlful of tobacco.



**Please turn the page for more new ideas**

SEPTEMBER 1956 169



## More New Ideas from the Inventors



**4 Typewriter to Light Copy.** A tubular light bulb inside this translucent typewriter roller would illuminate copy clearly. Designed as an aid in stencil cutting, the device includes an adjustable reflector that may be used to direct more light toward the typist.



**5 Electric Vest to Relieve Ache.** Buttoned on like a high-necked sweater, this heating pad would help ease aches and colds in the chest, shoulders, neck, and ears. The form-fitting heater would warm areas that can't be kept properly covered by ordinary flat pads.

**7 Single Outboard to Have Two Props.** Two contra-rotating props mounted on an adjustable hydrofoil would cancel the torque effect of a single prop, which

tends to lift one side of an outboard higher than the other. The foil could be pitched at the proper angle to plane the boat at various speeds.







**6 Pad to Rest Driver's Leg.** Your gas-pedal leg gets tired on long drives, says this inventor, not because it is immobile, but because of its tendency to move sideways. By steadying your knee, this adjustable, swing-out pad would ease the muscular strain.

**8 Brushes to Help Cleaner Clean.** The extension nozzle of an upright or tank-type vacuum cleaner might pull in more dirt if it had a set of rotary brushes like this. Traction wheels would ride against the rug; through idlers, they would spin spiral-bristled brushes that would stir and loosen carpet dust.



**9 Air Line to Fly Model.** Sacks expanded and contracted by air squeezed from a bulb through a plastic line would move the control surfaces on this model plane. Thus, control could be maintained with a slack line; whereas tension is necessary with conventional lines.

The following patents have been issued on these inventions: 1. Patent No. 2,724,450 to Reinhold Kamps, Stuttgart-Bad Cannstatt, Germany; 2. No. 2,713,543 to Leo Peters, Evanston, Ill.; 3. No. 2,731,187 to Alphonse Marquis, Sanford, Maine; 4. No. 2,703,836 to Curtis Minogue and William Kottmeyer, Chicago; 5. No. 2,718,585 to Helmi Hariu, Great Neck, N.Y.; 6. No. 2,722,974 to Everett Stagner, Colorado City, Tex.; 7. No. 2,705,468 to Sydney Dix, Los Angeles; 8. No. 2,696,017 to Lois Hall, Wichita, Kans.; 9. No. 2,714,783 to Neville Walker, Portland, Ore.

Copies of patents may be ordered, by number, from the Commissioner of Patents, Washington 25, D.C. at 25 cents each. To write to an inventor, if the address given above is insufficient, you may address him (by name and patent number) in care of the Commissioner of Patents.



# Doctors Endorse This Comic



The crusading hero of "Rex Morgan, M.D." takes a one-two poke at a cancer quack and

**Dr. Morgan's creator is a real M.D. with a lively practice and family**

**DR. NICK DALLIS** writes comic-strip continuity amid such distractions as inspecting a new gap in daughter Carolyn's teeth and a new trick that her sister Sally has taught their dog Teena.



**AT HIS OFFICE** in Toledo, between calls by his patients, Dr. Dallis confers by long distance with his publisher in Chicago while scanning fan letters from followers of Rex Morgan.





# Strip



the lay (non-doctor) coroner.



**While some comics are blamed for inciting crime, "Rex Morgan, M.D." has won praise from the American Medical Association.**

**By Joseph Dorlaque**

A YOUNG woman had her own special reason last fall when she asked for a job as a secretary in the office of the Publishers Syndicate in Chicago.

She said she had come there from her small-town home because she wanted to work for the company that put the comic strip called "Rex Morgan, M.D." in the newspapers. She felt grateful, she explained, because the Morgan strip had done so much to help her "back home."

For seven years she had had epileptic seizures with convulsions. Some of the home-town folks had acted as if they thought she was "possessed by the devil," she said. They avoided her and whispered.

This went on, she said, until Morgan in one of his comic-strip adventures explained that epilepsy is an illness and that with proper care epileptics can lead useful, happy lives. The strip gave people some understanding of her condition—they were friendly again and life became brighter.

She got the job in Chicago.

The epileptic episode is typical of the comic-strip dramatization which is winning Rex Morgan's author all sorts of official and unofficial praise.

A *spare-time creation*, Rex Morgan is written by a busy doctor—a real one—in Toledo, Ohio. He is Nicholas P. Dallis, M.D., who sometimes uses the pen name, "Dal Curtis." A psychiatrist, Dr. Dallis also writes another comic strip—Judge Parker.

Rex Morgan appears in about 300 newspapers which are read by nearly 100 million persons. Judge Parker is published in about 270 newspapers with a total readership of around 65 million.

Morgan appears as a young family doctor—a general practitioner—who has been known to run quacks out of town by exposing them before the right people. He also crusades against the dissemination of erroneous medical information by telling his patients—and anyone else who will listen—the truth about some diseases which are too often misunderstood. These have included—besides epilepsy—leprosy, alcoholism, multiple sclerosis, and mental troubles.

In 1954, the American Medical Association presented a special citation to Dr. Dallis for his work on the Morgan strip. The U. S. Food and Drug Administration, the American Cancer Society, and the President's Committee for Employment of the Physically



Handicapped have also joined in praising the doctor. The AMA citation reads, in part: "He has contributed immensely to public education on many medical subjects and alerted Americans to the dangers of medical quackery."

**Dr. Dallis has also won approval** with his Judge Parker strip which deals mainly with the legal problems involved in mental illnesses. The American Bar Association has presented him with a citation. So has the Freedoms Foundation, which is an organization that gives awards for "outstanding contributions to the

bringing about of a better understanding of the American way of life."

One target of Morgan the crusader has been the "lay" county coroner, who is not a doctor. Most counties of 38 states of the United States allow a man to serve as the coroner of his county even though he may have had no medical or legal training or experience.

The job of the coroner is to find out why



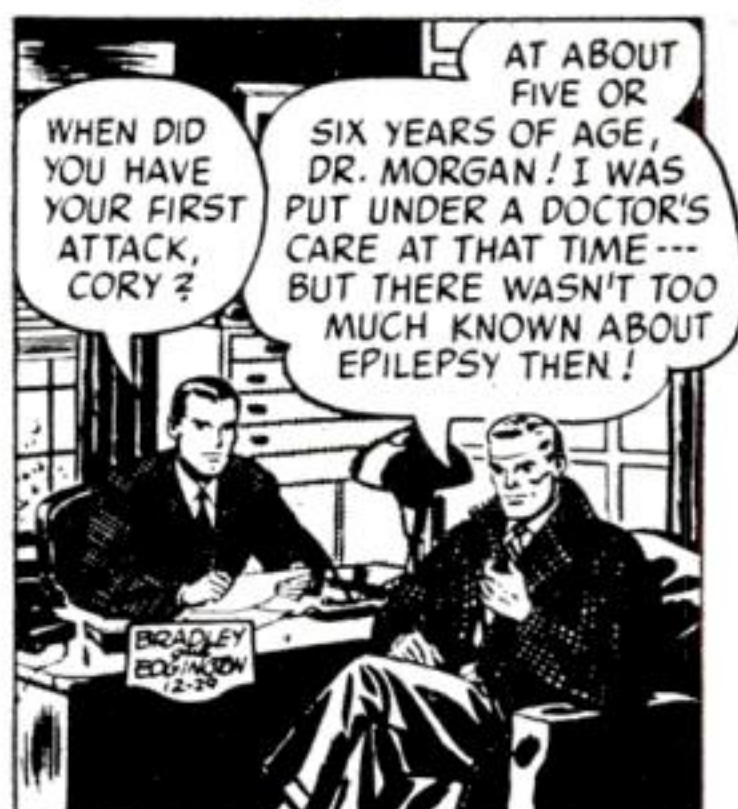
**HUMANLY FALLIBLE,** Dr. Morgan admits an embarrassing mistake.

somebody died when crime or neglect may have been mixed up in the death. The inability of the lay, or untrained, coroner to diagnose some deaths makes murder easier to get away with. It also can let a dangerous epidemic get a head start on a community's health watchdogs, says Dr. Dallis. Rex Morgan's attack on the lay coroner in a comic-strip episode set off a fusillade of newspaper editorials here and there over the country.

**This red-blooded physician of the funnies** probably makes more "house calls" than any real doctor in the world. Besides the United States, his dramatic cases are read every day in the newspapers of Sweden, Germany, France, Belgium, Denmark, Trinidad, Norway, Japan, Okinawa, and several Latin American countries.

"We try to create the kind of doctor we think everybody would like for his own family," says Dr. Dallis. The "we" includes the other men who have a hand in the production of the Morgan strip. They are Marvin Bradley and Frank Edgington, who do the drawing, and Peter Klinefelter, who puts in the speech "bal-

[Continued on page 280]



**Conference between Morgan**



**In this episode Dr. Morgan**



**Dread of leprosy, Morgan tells**





and a patient helps to correct common misconception that epilepsy is something to be ashamed of.



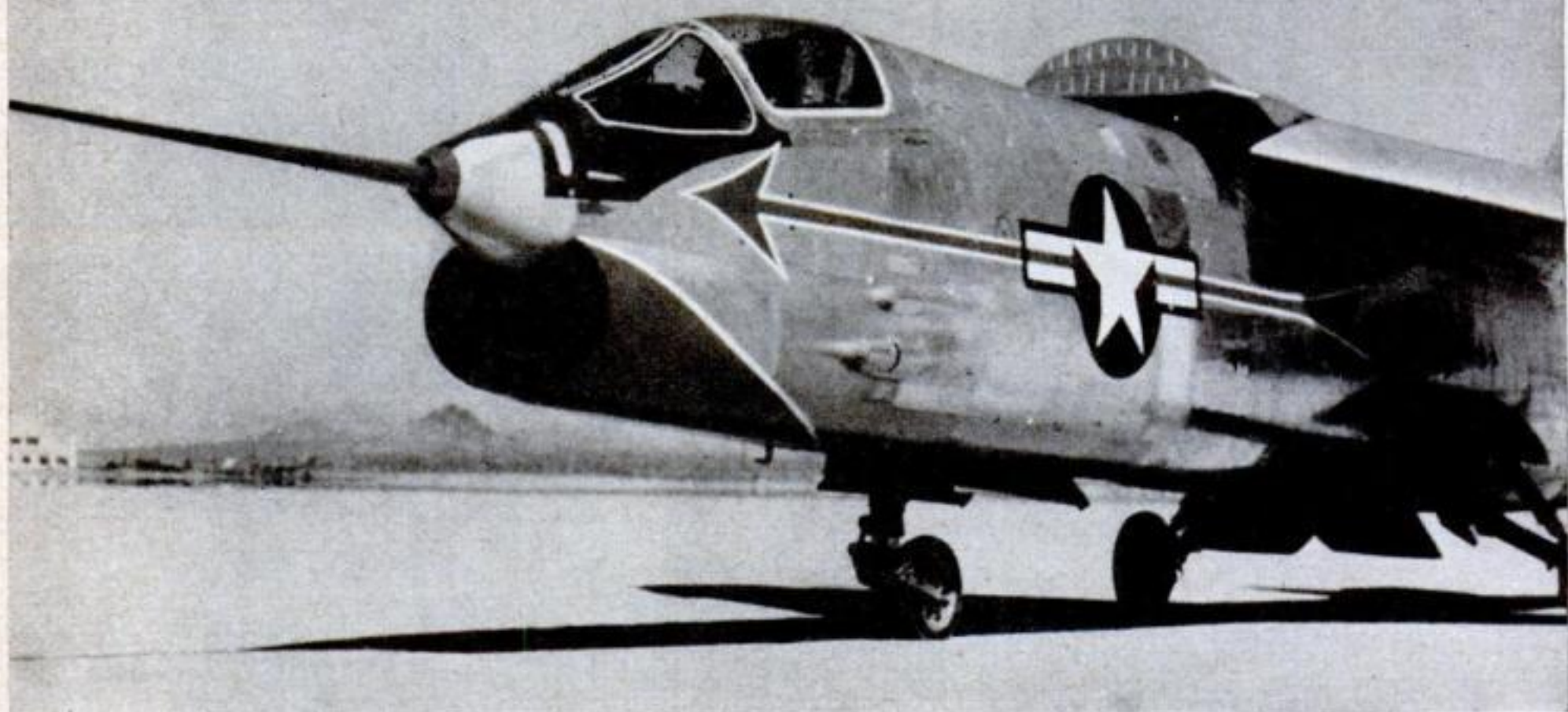
points out that mental illness, like any other form of sickness, requires proper medical care.



class of student nurses, has been ignorantly exaggerated. He gives them (and readers) the facts.

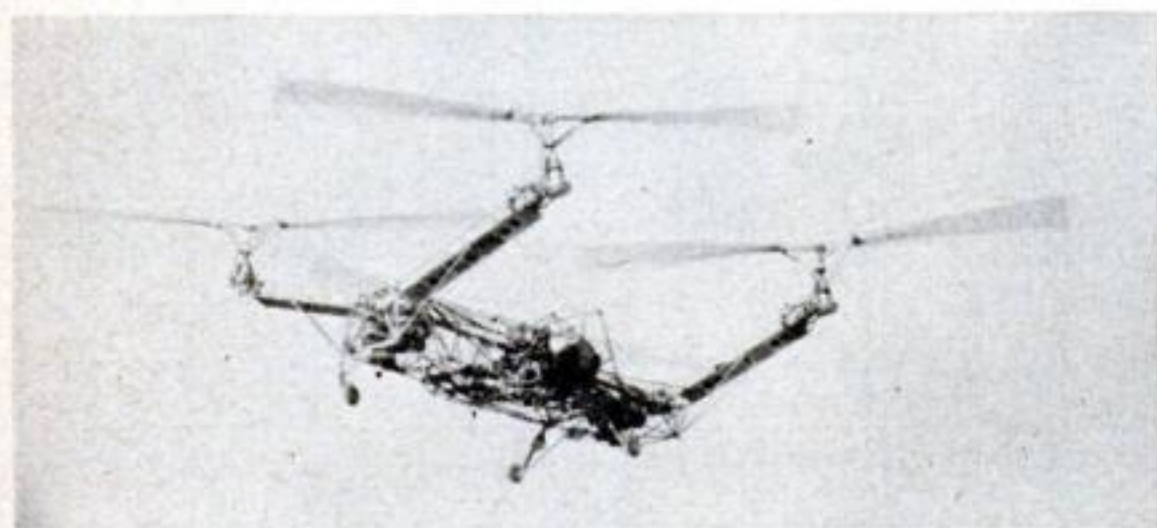


# New in Aviation



**Hinged Wing** A supersonic F8U-1 Crusader takes off with its variable wing in tilt-up position, and big leading-edge flaps down. The steep at-

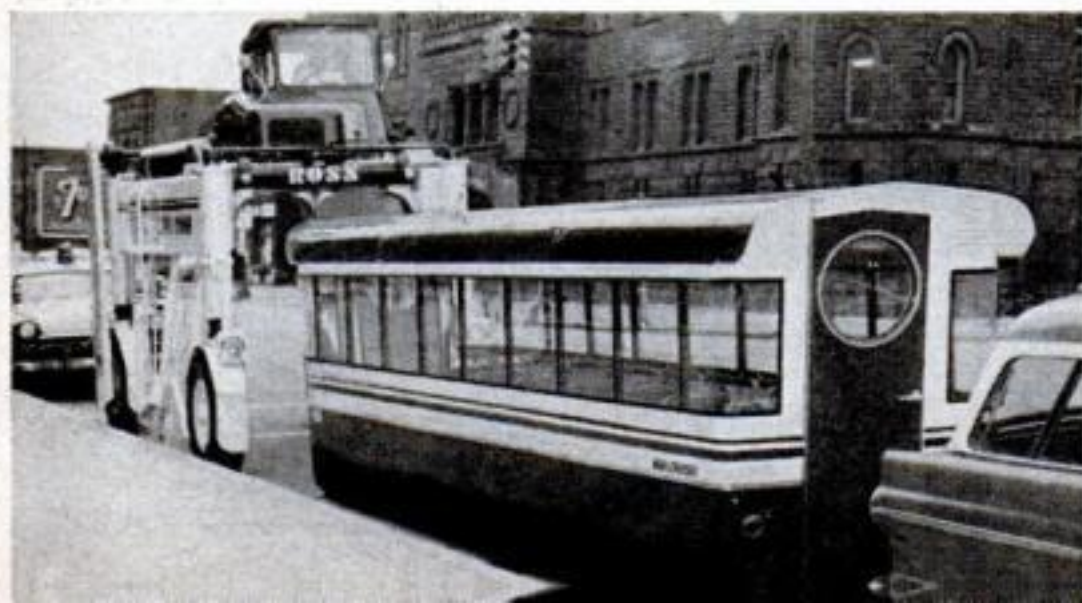
tack angle of the rear-hinged wing enables the Chance Vought jet to gain flight at a comparatively low speed after a short ground run. For high-speed



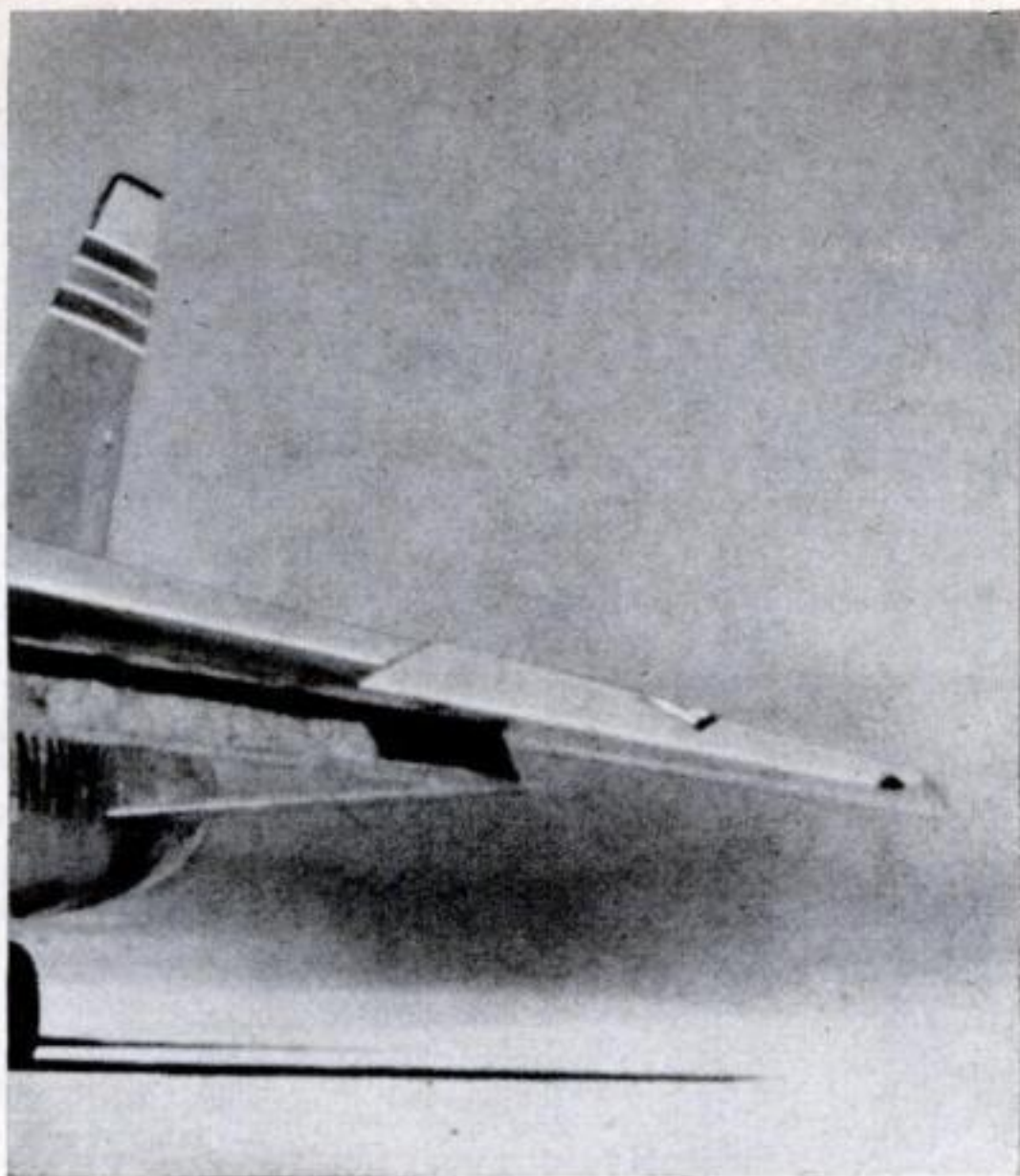
**Curious Copter** A four-rotor whirlybird is shown making its first test flight. It is the prototype of a big passenger Quadrotor helicopter (PSM, Feb. '56, p. 121), being developed by Convertawings, Inc. Speed and safety are claimed.

**Jet Jitney** Passengers may be carried from an airport terminal building to their jet airliner in this unique conveyance. It consists of a wheel-less bus pod that is picked up by a motorized straddle carrier. The driver,

sitting in a cab on top, would drop a passenger pod at the plane, pick up an empty baggage pod, then head back for a third pod. Reason for the vehicle: to eliminate the high cost of taxiing jets to a convenient loading location.



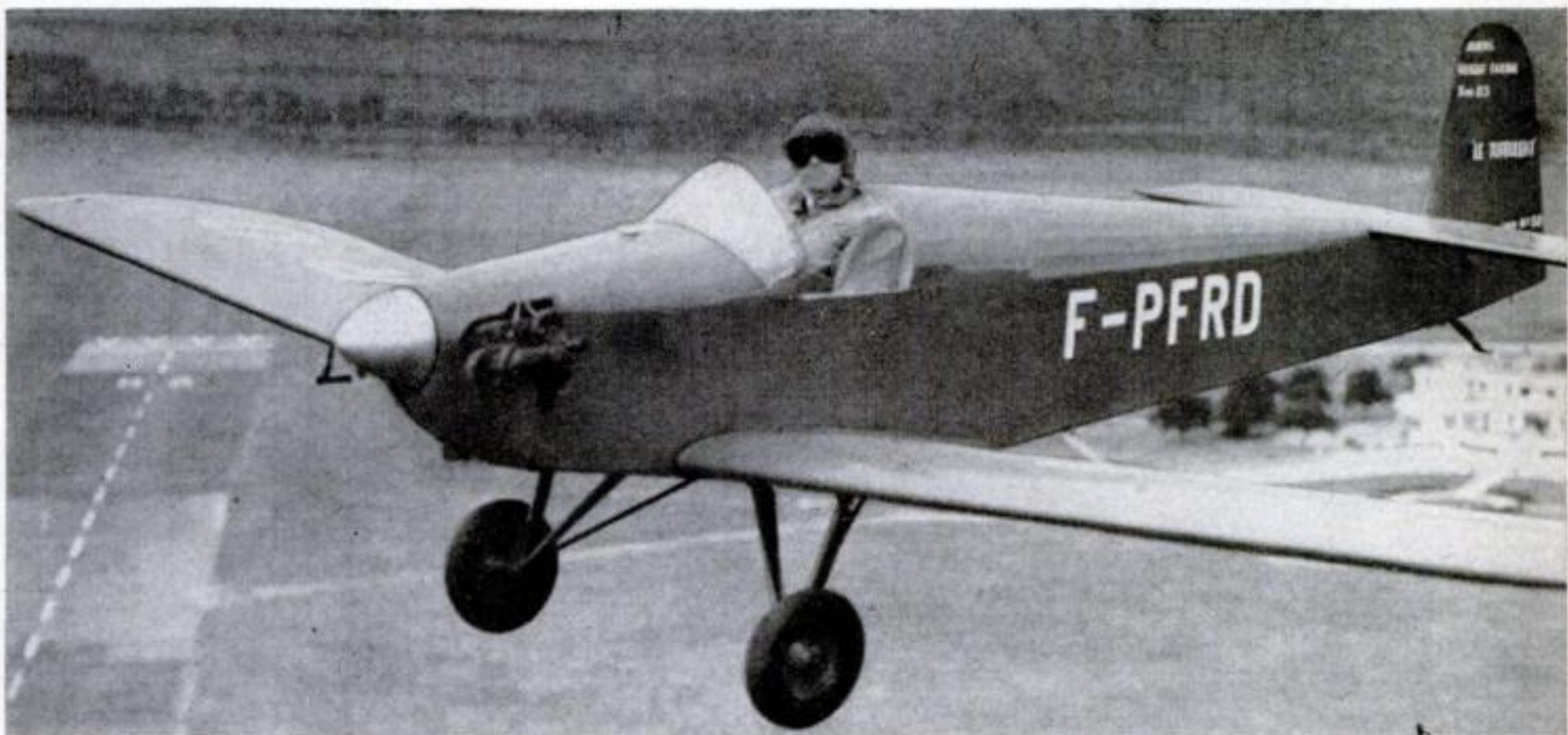




flight, the wing is brought back to normal attitude. The two-position wing also makes possible low-speed carrier landings of the Navy's fastest fighter.



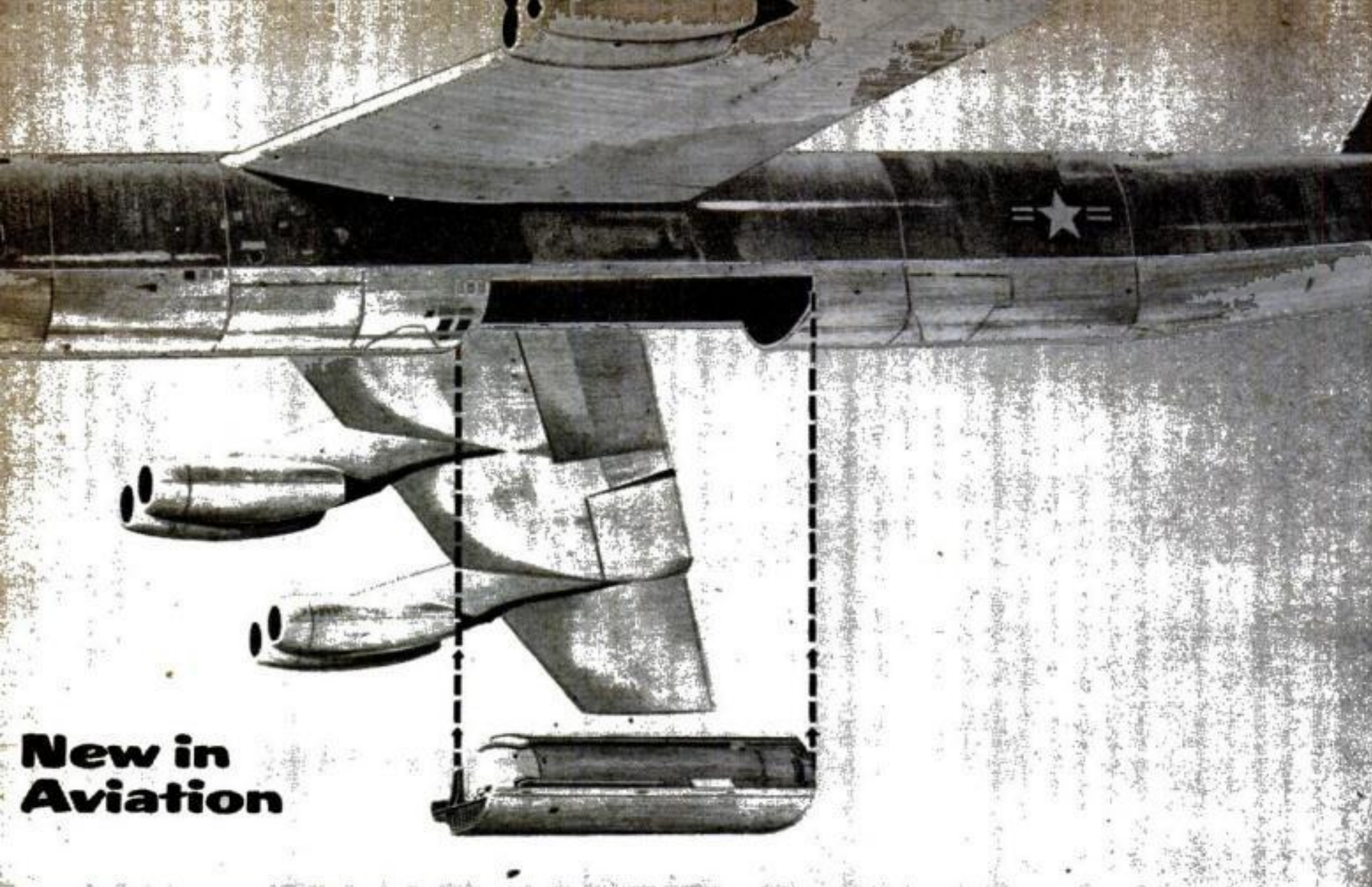
**Back-Seat Flier** A T-29 military transport is being flown by a pilot seated in the cockpit of an F-102 jet all-weather interceptor, which has been installed inside the cabin of the airliner. The pilot flies the big plane as if it were an interceptor, but here there's room for engineers and their equipment, and in-flight checks can be made on complex electronic control systems for advanced jet fighters.



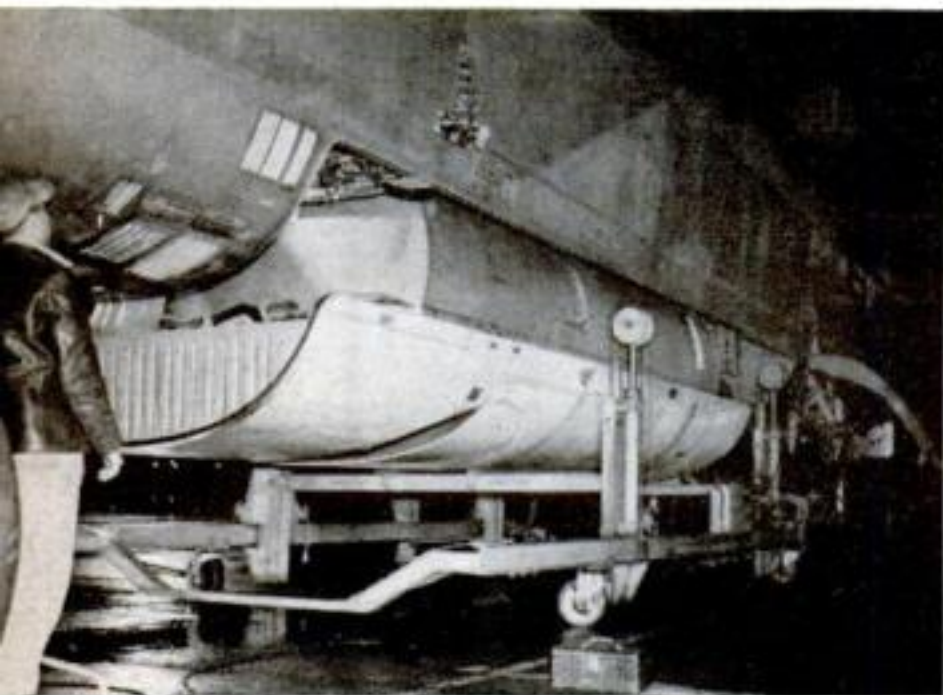
**Homemade Bird** Frenchman Roger Druine designed this small plane for the build-it-yourselfers. A single-seater, the Turbulent weighs only 342 pounds, is powered by a 36-hp. Volkswagen engine, and has a cruising

speed of 75 m.p.h. Its takeoff speed is only 28 m.p.h. Cost is put at about \$850, including Druine's plans. He claims that the little lightplane is so gentle and safe that it can be handled by a beginner with no solo experience.





## New in Aviation



**Bomb-Bay Capsule** The Boeing B-52 Stratofortress strategic jet bomber can now double at other jobs—photo reconnaissance and special electronic missions. An auxiliary fuselage, or capsule (above), that fits into the bomb bay has stations for two crewmen and equipment, either aerial cameras or electronic gear and antennas. The capsule that turns the 650-mile-an-hour bomber into a multipurpose plane is shown being raised into place at left.

**Jet Liner** A cruising speed of 609 miles an hour is expected for this medium-range jet airliner, which will be built by Convair for delivery late in 1959. Powered by four new GE jet engines, the Golden Arrow will be able to get in and out of 5,000-foot runways, cruise at 35,000 feet. Exterior metal of the plane will be gold in color.





## Spring Snare Lands Frogman On the Run

THE Navy is now putting the snatch on its frogmen. A sling-shot-like retriever on a rescue craft traveling at 14 knots hauls them from the water in 2.4 seconds each.

Here's how the sea-rescue pickup works: A snare, on the end of a spring-loaded cord suspended over a towed rubber boat, is handed to a swimmer (top). The boat, moving away, stretches the cord like a rubber band (center). The stored-up energy then catapults him in (bottom). If other swimmers were to be picked up, a snare man would meanwhile have handed a second snare to another swimmer.

Experts of All American Engineering Co. plan to adapt it to 50-knot boats.



...pulls swimmer...



...to safety



## They Say Now . . .

ADMIRAL LEWIS L. STRAUSS, CHAIRMAN, ATOMIC ENERGY COMMISSION: *"We are not interested in . . . the most reactors to produce the largest number of kilowatts. . . . We are in the business of developing economically competitive nuclear power. . . . We do not know whether the Soviet goal is plutonium or . . . propaganda."*

DR. C. B. JOLLIFFE, VICE-PRESIDENT AND TECHNICAL DIRECTOR, RADIO CORPORATION OF AMERICA: *"The science fiction of today usually turns out to be the reality of tomorrow."*

DR. ROBERT W. CAIRNS, DIRECTOR OF RESEARCH, HERCULES POWDER CO.: *"Industrial chemical research . . . involves taking apart the bricks and mortar of nature's raw materials and rearranging . . . them into new molecular structures."*

DR. LOUIS T. BENEZET, PRESIDENT, COLORADO COLLEGE: *"Students in greater numbers come seeking careers in processing of men and materials . . . rather than careers dealing with the origins of knowledge. The course is easier and the career pays better."*

SENATOR JOHN F. KENNEDY (MASS.): *"If more politicians knew poetry, and more poets knew politics . . . the world would be a little better place to live."*



# Inside Our First Big A-Power Plant

**Here's a preview of the country's first large-scale nuclear generating plant, whose kilowatts will help light Pittsburgh's lamps and run its machines next year.**

**By Herbert Yahraes**

**I**N A vast, seven-story hole in the ground 43 miles west of Pittsburgh, massive sections of steel plate are being welded together to form gigantic cylinders.

Heavy pipes for carrying superhot radioactive water are being run between the cylinders.

Thousands of cubic yards of concrete are being poured to make five-foot walls around the cylinders.

These great steel vessels—the largest of them capable of holding three 10-room houses plus their lawns—will contain the vital organs of America's first full-scale atomic reactor for producing electric power.

Now rapidly taking shape on the left bank of the Ohio River at Shippingport, Pa., the structure of the plant is scheduled to be completed next spring. The nuclear core of the reactor is due to be ready in July, '57. Tests will probably take several months. Then one day engineers will throw the switch activating the control-rod mechanism. As the rods slowly rise from the plant's uranium-fueled furnace, a chain reaction will start, fissioning atoms will heat water, water will become steam, steam will run a turbine, and electricity will course into the lines of the Duquesne Light Co., which serves an 816-square-mile area including the city of Pittsburgh. Twelve years after Hiroshima, a full-scale electric utility plant using nuclear energy purely for power will be a reality.

FUEL HANDLING BUILDING

BOILER CONTAINERS

REACTOR CONTAINER

AUXILIARIES CONTAINER

CONTROL ROOM

TURBINE AND GENERATOR

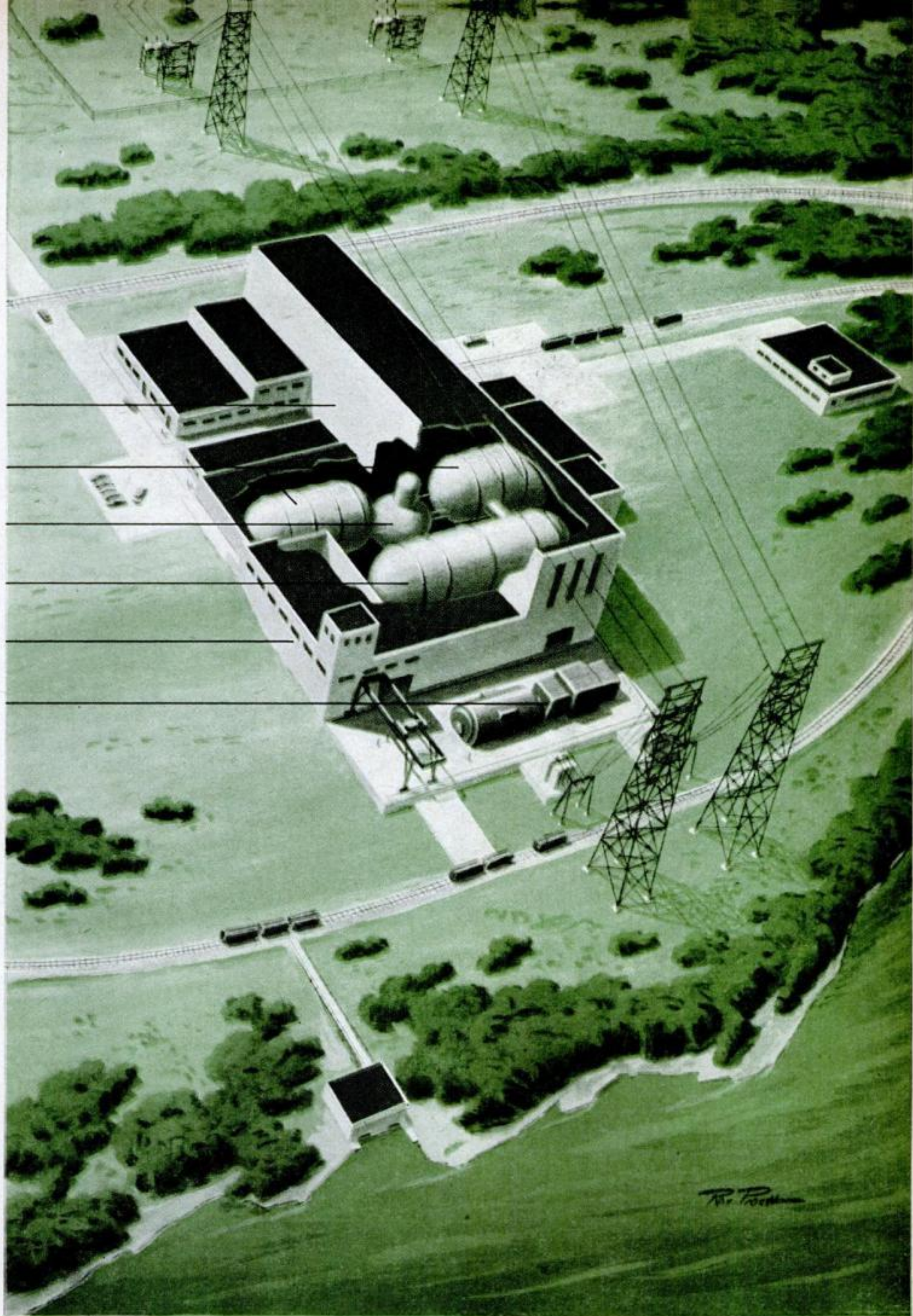
**AERIAL VIEW** of A-power station at Shippingport, Pa., is cut away to show huge vessels that hold nuclear reactor, steam boilers and auxiliary equipment. The steam turbine and generator will be on outdoor platform.

**The first loading** of uranium fuel, one pound of which equals 1,300 tons of coal, is expected to supply enough power to generate at least 60,000 kilowatts of electricity. That's enough for the homes of 250,000 people. More powerful nuclear cores, to be built later, will enable the turbine station to realize its full 100,000-kilowatt capacity.

Admiral Lewis L. Strauss, chairman of the Atomic Energy Commission, has called the Shippingport project "more fundamentally a pioneer venture than the first railroad to penetrate the West or the first airline to span the continent." It is also a complex mixture of governmental and private enterprise.

The Duquesne Light Co., which will operate the plant, is supplying the site







and building the turbine-generator section. Westinghouse Electric Corp. is building the nuclear part of the station under contract with the AEC and with the architectural and engineering assistance of Stone and Webster. Subcontractors include Combustion Engineering, Foster Wheeler, Babcock & Wilcox, Pittsburgh-Des Moines Steel, Burns and Roe, and Dravo Corp.

**Total costs** will probably run well beyond \$100,000,000, more than half of which will be for research and development. Duquesne estimates that a plant of the same capacity, fueled by coal instead of uranium, could be built for less than \$20,000,000. The difference—which represents the cost of pioneering—will shrink greatly for later installations.

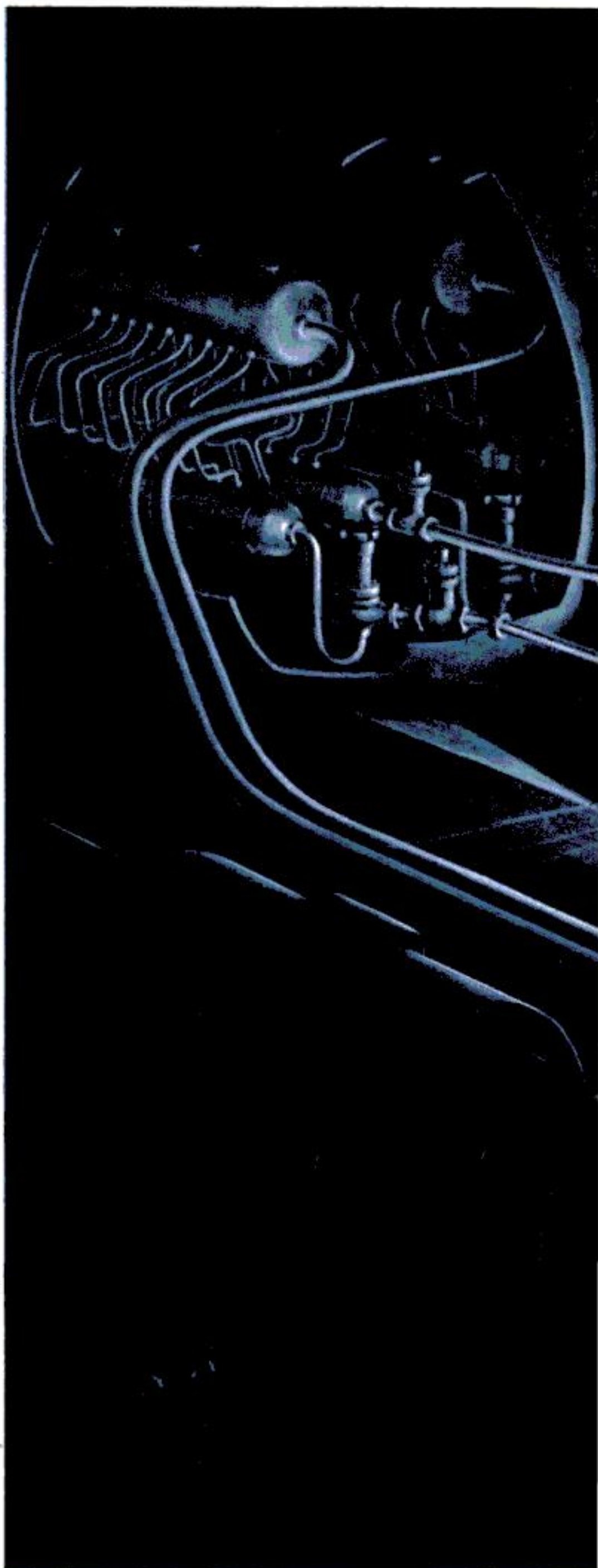
In this history-making station, electricity will be generated exactly as in any other steam-using power plant. The big difference lies inside four great, interconnected steel vessels that will contain the equipment for making the steam. One vessel holds the nuclear reactor; two more, the four steam boilers; and the fourth, auxiliary equipment.

The big containers are purely a safety feature. They are made of one-inch steel plates put together with thousands of feet of welding, every inch of it X-rayed to assure soundness. They cost more than \$1,500,000 and they may be quite unnecessary, for every precaution has been taken against leakage anywhere. Nevertheless the designers have made the vessels big and strong enough to withstand the pressure if all the water in the reactor, under a pressure of 2,000 pounds to the square inch, tore loose at once.

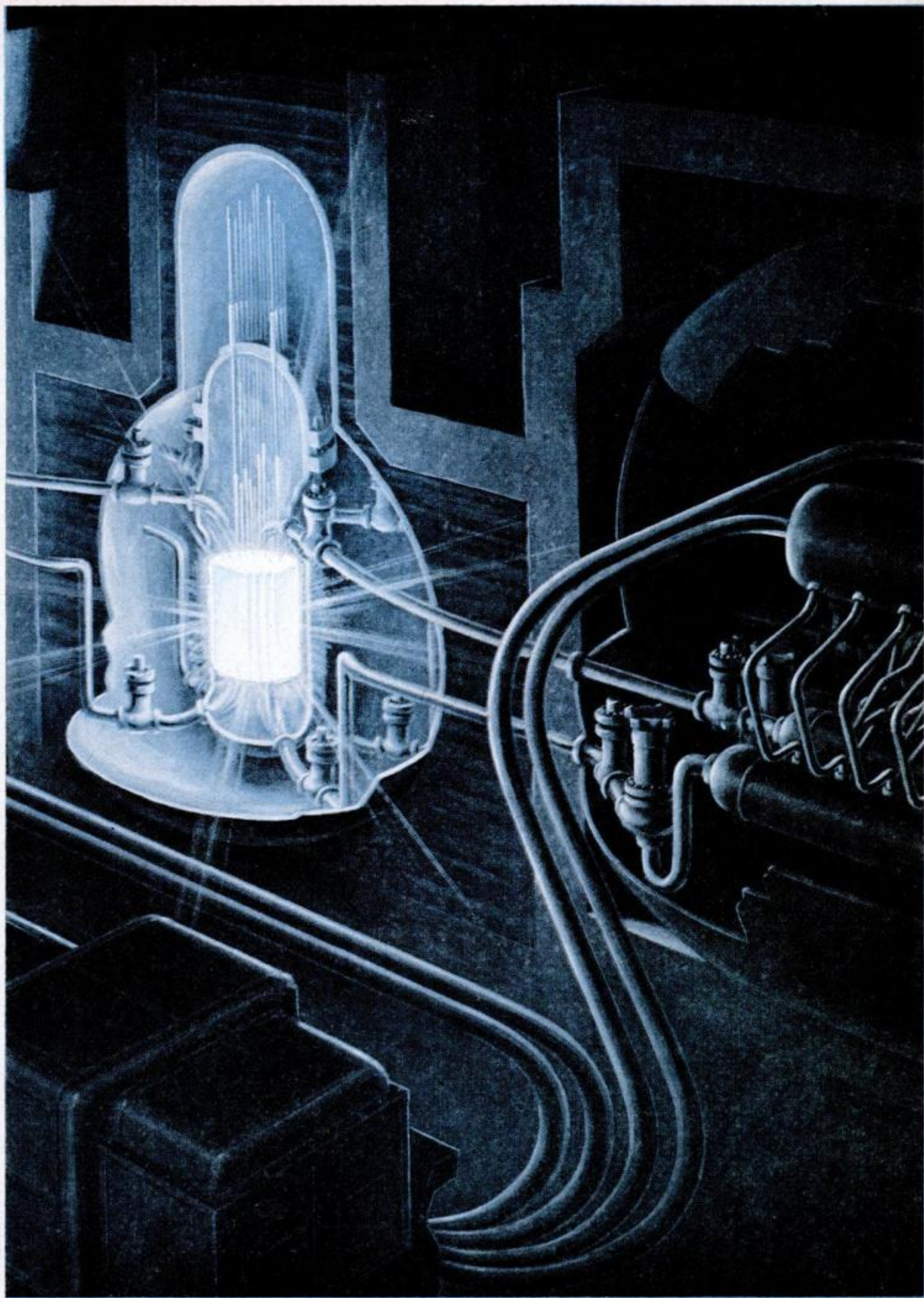
When the station is in operation, no

.....

**URANIUM-FUELED REACTOR**, heart of plant, heats pressurized water to 542 degrees. The water flows to boilers in adjacent vessels, gives up some of its heat to turn water of second circulating system to steam, and returns to reactor to be reheated. Steam of second system, piped from boilers, drives turbine and generator, then turns to water in condenser, whence feedwater is pumped back to boilers. Artist's conception departs from actual layout of plant to bring principal units together in this symbolic group.









one will be able to see its nuclear heart. But suppose you could. First you'd go through a five-foot concrete wall. That would bring you to a big steel ball 38 feet in diameter.

*Inside the ball* you'd find a wall of water three feet thick, and then the reactor vessel, standing as high as a three-story house and with walls of eight-inch steel.

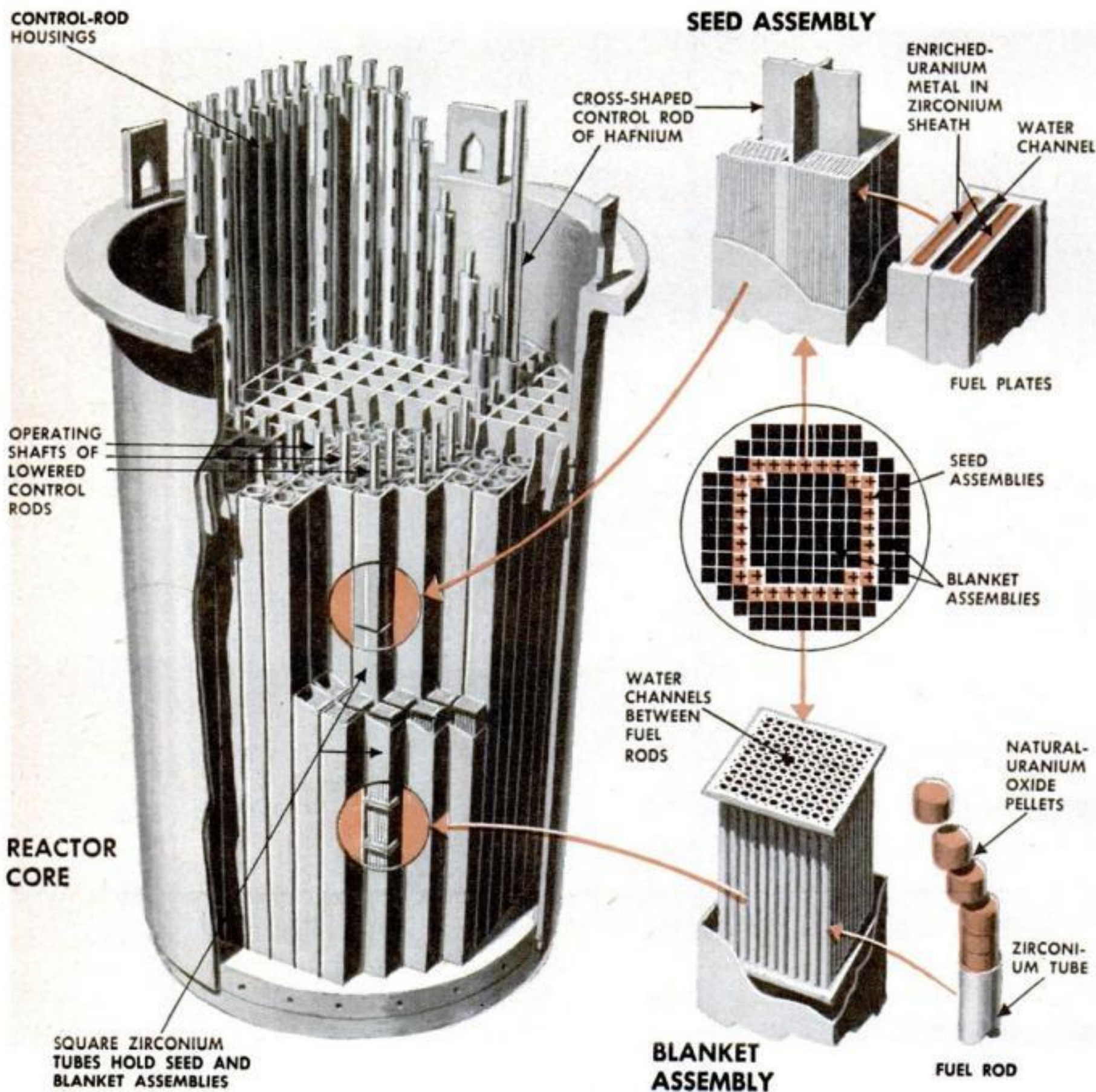
Finally, in the lower half of this vessel you'd come upon a stainless-steel cage, and this would hold what you were looking for. But if you've thought of uranium as chunks of metal, its appearance might

come as something of a surprise to you.

You don't just throw uranium into a reactor. You have to fashion it into the precise shapes and sizes calculated to support a chain reaction at the rate you want. That's expensive. The bill for the first nuclear core at Shippingport—containing some 14 tons of uranium—is going to be between \$10,000,000 and \$12,000,000, which makes it the most expensive load of fuel that was ever shoved into a furnace.

To get an idea of what it looks like, imagine a great armful of long square

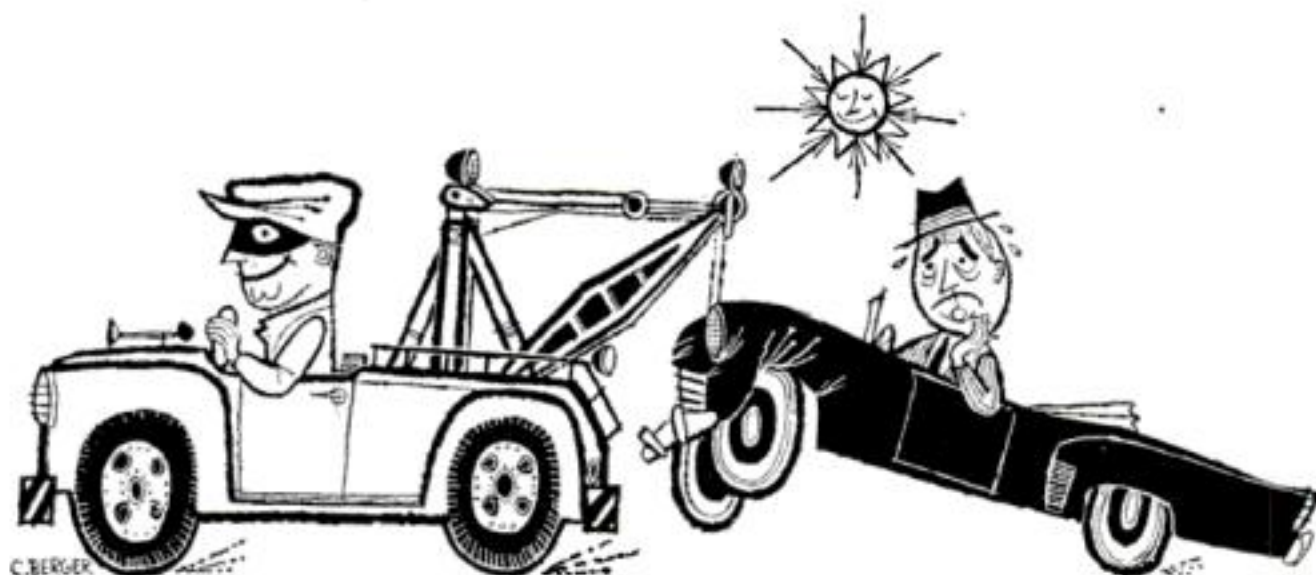
*[Continued on page 286]*



**CORE OF REACTOR**, left, has two kinds of fuel elements, arranged in pattern shown at center right. Some have plates of enriched-uranium

alloy. Cross-shaped control rods of hafnium metal pass between them. Other fuel elements hold stacked pellets of natural-uranium oxide.





# How to Foil the Auto-Repair Crooks

***Sure, the great majority of repairmen are honest. But the few who aren't can pick the unwary motorist cleaner than a cat can pick a fish. Here's how to protect yourself.***

**By John L. Springer**

**A** HUNDRED miles from home, a car owner whammed his new sedan into a tree not long ago. After a tow truck had hauled the car off to a garage, the repair foreman studied the damage and prepared his estimate. The owner glumly initialed the estimate, the work was done, and the bill paid.

When the owner got his car back, he asked his regular mechanic to look the job over. A new oil pan, radiator, steering post, fender apron, wheel and other parts had supposedly been installed. But the mechanic found that not one replacement item was new. Everything was secondhand.

Steaming mad, the owner went to the local district attorney, and the D.A. investigated. The garage owner pointed to a line of small type on the estimate per-

mitting him to use old parts if new ones weren't available. Now the motorist faces a drawn-out court fight to prove that new parts could have been bought, and to get back a \$150 overcharge.

**I** HEARD that one from Edward Silver, Brooklyn's aggressive district attorney. Silver, who has been battling car-repair gyps in his county, has uncovered plenty of evidence that the cards are stacked against any owner who runs into a crooked repairman. Here's another typical case:

A motorist slid into a truck. A repairman verbally quoted \$80 for the fix and the motorist told him to go ahead. When he came back to pick up his car, the mechanic announced that the bill had been increased to \$140.

The motorist said he wouldn't pay. "Suit yourself," the repairman shrugged,



"I'll slap a mechanic's lien on your car. You won't be able to move it until I get my money."

**T**HE mechanic was within the law. In most states, if you don't have a written estimate, you must pay what the mechanic says your bill is. And he can hold the car until you do. If you've been flagrantly overcharged, you can sue later and maybe get part of your money back.

I've asked law-enforcement officers, Better Business Bureaus, the American Automobile Association, and many garagemen about typical rackets that rook motorists. I found, of course, that the vast majority of mechanics and service-station men are completely honest. Said one AAA official:

"Our experience is that 99 percent of garages and service stations are trustworthy. But even one gyp outfit in a hundred adds up to a lot of dishonest places—because there are 100,000 auto-repair shops and 500,000 filling stations in the U.S. The average motorist probably runs into service-station crooks many times a year during his travels."

**D**RIVING across Illinois, a salesman realized that he hadn't changed oil for 5,000 miles. He pulled into a small-town gas station, ordered an oil change, and went down the street for lunch. At his next gas stop, more than 200 miles away, the attendant pulled the dipstick and commented on how dirty the oil looked. The first man had obviously spotted the out-of-state plates, pocketed the \$3 for the oil he'd never delivered, and figured that the car would be far, far away before his chiseling would be discovered.

In upstate New York, a motorist pulled into a one-pump gas station

behind two kids in a jalopy. The driver told the attendant to fill it up and left the car for the rest room. Hours later, well down the road, the driver got to thinking about the high gasoline bill he'd paid, particularly in relation to his gas-gauge needle. A little mental arithmetic showed him that the attendant had switched the hose without returning the meter to zero, and had thus added the cost of the kids' gas to his.

Some repair shops are set up so that they have almost an incentive system for gypping. In these places, the service manager and his mechanics work on a percentage. When a repairman tells you

that you need a new part, you may have no way of knowing whether you really need the part, or whether he needs the commission.

Shops like these often find the costliest way of doing a repair job, bill you accordingly, and then use cheaper short cuts. This practice is so common that the America Fore Insurance Group uses a special school to teach its adjusters—the men who settle up on insurance claims—how to

outwit bill-padding sharpshooters and keep damage-repair costs down to what they should be.

**S**TUDENTS at this school are taught that there are usually at least two ways to repair a car. Say you slam into the rear of another car and your front grille is dented. A completely new grille may cost \$43.50. But grilles come in as many as a dozen pieces that are easily fitted together. Maybe only a few sections of the grille need replacing. The sharpshooter bills you \$43.50, changes the necessary pieces to make the grille look like new again, and pockets the difference.

The adjusters are taught to see what

### **Decoy Car Traps Crooked Garageman**

TO GET evidence, one district attorney used a new twist on an old trick. He took a well-worn sedan and had it worked over by police mechanics until the car was in perfect condition. Then he had a detective drive it straight to a garage suspected of gypping the public. As expected, the sharp mechanic there insisted that the car was in bad shape, and that it needed at least a new fuel pump, carburetor, fuel filter and several other parts, plus expensive labor.

The crooked mechanic found himself in court.



# 7 Ways to Guard Against Auto-Repair Gyps

**1** You're better off buying all your gas and oil from one place—the operator has a stake in your good will and won't jeopardize it by trying to pick up a few doubtful dollars.

**2** If you get into a jam on the road and must have your car towed away, try to find out the reputation of the repair shop you're sending it to. Once a disreputable shop gets your car, it may quote an out-of-line price for repairs, figuring that you're over a barrel.

**3** Always get an estimate in writing on major repair jobs, and make it plain that you don't want any work done without your specific approval. Read it carefully for hidden

jokers. On ordinary parts replacements, you can check on the price quoted you by consulting the manufacturer's standard-rate manual, available at authorized dealers. It lists what each part costs and how long it takes to install.

**4** Show interest in repair work being done. Don't just say, "My car won't run. Can you fix it in a hurry?" If you ask a few intelligent questions, the repairman will size you up as a risky person to gyp.

**5** If parts need replacing, tell the repairman beforehand that you want the old parts. On fuel pumps, generators, starters, carburetors, tires, batteries, and voltage regulators,

you are generally entitled to an allowance on the old unit that is replaced. Insist upon it. Also, insist on new or factory-rebuilt parts.

**6** If you are traveling, make sure that you get all the gas and oil that you pay for. Some servicemen think it's perfectly okay to gyp strangers.

**7** There is some protection in belonging to an automobile club, and in dealing with garages affiliated with that club. The club contract is valuable to a garage and no garage owner wants to lose it. He knows that complaints can cost him his contract. He'll think twice before trying to put anything over on you.

.....

can be salvaged before approving a bill for new parts. For example, in some cars with automatic transmissions, the oil that operates the drive is cooled by a separate radiator segment in the bottom of the cooling system. This unit alone costs \$12. Even if the main radiator tank is ruined, this segment often can be saved. Or possibly only the core section is damaged. An honest serviceman will replace the core only—at a saving to you of maybe 30 percent.

Suppose your hood is damaged on one side only. On most cars, hoods are made in two sections and welded together. You could save one half and weld it to a new half. A mechanic who tries to bill you for a completely new hood stands to pocket an extra \$25 or \$30 on the job.

**R**EPUTABLE garagemen trying to run an honest business told me that some customers practically demand to be gypped. These customers want every repair made quicker than is required to do a good job. Then the serviceman is forced to cut corners if he wants to keep his trade.

"Many customers can't or won't spare cars for the time needed for a good job," a repairman told me. "They're on us

from morning to night, demanding their autos. Pressure like that makes you push repairs without double-checking. Some jobs we turn out under such circumstances are pretty sour. But what else can we do when customers think that the worst crime of all is not to have the car ready when they want it?"

**S**OME car owners who think they are being gypped often are actually the victims of a serviceman's ignorance. The newer your car, the surer you had better be that your repairman knows his business. Say you buy a new model car with a radically different transmission gimmick. For about a year, only the car's authorized service stations will be likely to know much about repairing that transmission. Take your car elsewhere, and you may pay a day's wages to a repairman while he tries to find out what it's all about.

How can you protect yourself from the gyps? Complete protection is just about impossible, unless you know everything there is to know about automobiles and you have time to stand over a mechanic, checking every move. But the experts say that the precautions listed on this page will *tend* to get you a square deal. **END**

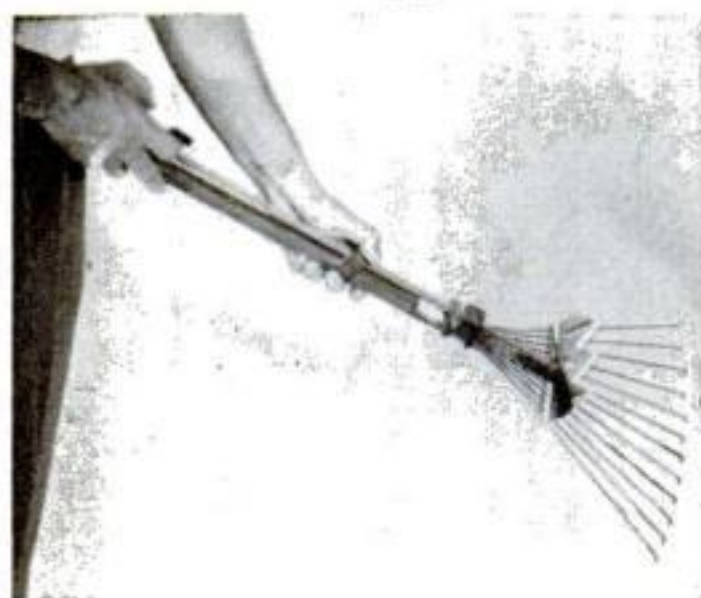


# New Aids to Living



**1 Kitchen corner** is no problem when Rota-Drawer units are fitted into the angle. Pie-shaped steel drawers hung on a vertical rod swing out at the touch of a finger into full view.

**3 Triple-threat tool** lets you rake, hoe or dig weeds with one implement. Pushing down rod on handle closes tines, positions hoe and digger.



**2 Play-Shade and totem tent** fastens to a clothesline pole or a post to cast a 50-foot square of shade. The folding umbrella can be fixed at any height or tilted at any angle to block out sun. Sidewalls convert it to a playhouse, camp shelter or beach cabaña.

**4 House marker** less than an inch thick lights up inside. The bulb housing at one end of the plastic name plate screws to a window- or door-frame. The wire passes through a drilled hole to plug into an indoor outlet.



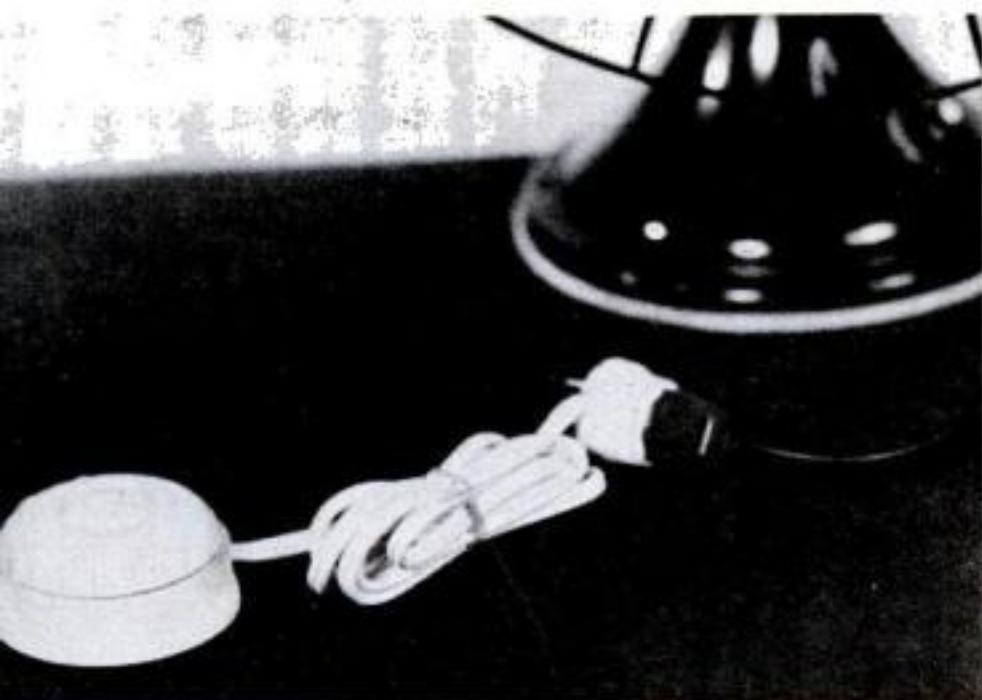




**5 Miniature vacuum cleaner** keeps you looking as spruce as a West Pointer and does a quick job on furniture and car upholstery, too. Two flashlight batteries keep a little centrifugal blower spinning to draw in dust and lint.



**6 Duster spray** treats cloths and mops to make dust cling instead of scattering to new quarters. The gathered dust rolls up into big, lint-like globules that are easy to shake free over a wastebasket or a spread newspaper.



**7 Breeze control** makes any fan—or any air conditioner up to  $\frac{3}{4}$  tons—automatic. Just plug in the appliance and the palm-size unit recognizes temperature changes of plus or minus one degree, feeding in or cutting off the current to cool or warm up the room.



**8 Built-in vacuum cleaner** puts the motor in the basement, attic or garage (right). Hose and attachments plug into an inlet valve in each room and dust is sucked into a container beneath the husky one-hp. power pack. You can even vacuum wet surfaces with the Vacu-Flo.

**More information** about the products shown on these pages can be obtained from: 1. Home Steel Products, Inc., 1528 Vassar Ave., N.W., Canton, Ohio; 2. The Play-Shade Co., 111 S. 13th St., Garland, Tex.; 3. Dandy Products Corp., 220 Nat'l Bank Bldg., Oshkosh, Wis.; 4. Fineline Co., 303 Fifth Ave., New York City 16; 5. Morton's, 312 7th St. N.W., Washington 4, D.C.; 6. Fuller Brush Co., 3586 Main St., Hartford 2, Conn.; 7. C & M Industries, Inc., 141 E. 44th St., New York City; 8. Vacu-Flo Division, H-P Products, Inc., Louisville, Ohio.



*"Watch her, Gus," Whipple warned. "She may be riding the brakes on the sly."*



## Gus Defends a Woman Driver

**By Martin Bunn**

**G**US Wilson, genial proprietor of the Model Garage, found himself drawn into the touchy argument about the comparative driving ability of men and women when Mr. and Mrs. Henry Whipple came to him. Henry Whipple, a portly, excitable man with piercing eyes behind thick glasses, slipped out of the family sedan to start the ball rolling. Frieda Whipple, pretty

and plump, sat in the car and regarded her husband with an air of disdain.

"Gus," Whipple pleaded, "will you please check over this car and convince my wife that there's nothing wrong with it?"

"Don't ask the man to perform miracles," Mrs. Whipple said. "There's something wrong with it and you know it. The trouble with you, Henry, is that you're just too stubborn to admit it."

"Women!" Whipple groaned, clapping





his forehead in disgust. "Gus, I drive this car every day and it runs like a watch. She drives it at night and has all kinds of trouble. But will she admit it's her driving? No, it's the car. Or maybe the night air or the heat of the moon that makes it get hot."

"Do you mean to tell me," Gus asked, "that this car heats up at night, and doesn't in the heat of the day?"

"Exactly," Whipple said triumphantly. "And not only that, it loses power, won't pull the hat off your head, and gets poor gas mileage—that is, according to my wife's story. Probably she drives with the parking brake on or rides the foot brake."

"I do not," Mrs. Whipple declared. "Mr. Wilson, please prove to my husband that there is something wrong with this car."

Gus glanced at his helper, Stan Hicks, who stood a few feet away, and showed both elaborate unconcern and suspiciously shaking shoulders.

ASSUMING his best professional attitude, Gus said, "I'll do my best. Now if you'll just give me some of the details."

"I drive the car every day on my job," Whipple said firmly. "I work for Roberts Brothers selling dairy machinery, milking machines, everything for contented cows—that's our motto."

"How could a cow possibly be contented with you in the barn, Henry?" Mrs. Whipple giggled.

"Don't interrupt, my dear," Whipple said. "Now, Gus, I drive this car every day over rough country roads, up hill and down, calling on dairymen, and it runs fine. I get home around five. Then, about seven-thirty, three nights a week, my wife drives it to Stanfield, where she teaches a night class in home economics. She has all kinds of trouble. You know, Gus, that it could be nothing but her driving."

"Gus knows nothing of the kind," Mrs. Whipple said heatedly. "I've been driv-



ing since I was a girl, and I've never had anything like this."

AT THIS juncture, Gus wisely took refuge under the hood. He felt that it was Mrs. Whipple who would most likely be put out, since it seemed impossible for a car to heat up in the cool night air and run cool in the heat of the day, unless the driver was at fault.

Perhaps Frieda Whipple had been driving with the parking brake on. But it seemed to be unworn, and there was no drag from either the parking or service brakes in the released position.

Methodically Gus went over the car, checking ignition, timing, carburetion, gas pump, compression and cooling system. As he worked it occurred to him that even if he did find something wrong it wouldn't solve anything. The problem here wasn't whether there was or wasn't a flaw in the car. The problem was, what could be wrong with a car that would cause the difficulties Mrs. Whipple reported, at night, with the same car performing perfectly in the daytime? Or was Henry Whipple playing a game with her by claiming that he wasn't having the same troubles with the car that she was?

PUTTING this night-and-day business from his mind, Gus concentrated on what would normally cause a car, day or night, to lose power, get poor mileage, heat up. His thoughts turned to the manifold heat valve and he checked it. The counterweight showed that the valve in the cross-over pipe was open, as it should be with a warm engine.

"This engine feels warm," he said to Whipple, knowing that the couple only lived a few blocks distant. "How far has it just been driven?"

"We came right over when I got home

from my route," Whipple told him. "Didn't even stop to eat. I wanted to settle this thing once and for all before my wife drove to Stanfield tonight. You'll notice that the temperature gauge is normal. So you see, it must be my wife's driving."

"Don't put words in Gus's mouth," Mrs. Whipple said.

"I'm sorry, Mrs. Whipple," Gus said apologetically, "but your car seems to be in excellent condition—so far, I haven't found anything wrong."

"You see, my dear," Whipple said, triumphantly snatching off and polishing his glasses, "I'm right. Now perhaps if you would take some driving lessons . . ."

"Just a minute," Gus said, holding up a protesting hand. "I didn't say your car was in fine shape.

I said, it *seemed* to be. I think that the thing to do is for you two to go home and have your dinner. Then, at the usual time, Mr. Whipple and I will ride to Stanfield with you. Stan Hicks will follow in my car, to bring us back while you attend your class."

Mrs. Whipple beamed. "Mr. Wilson," she said, "you are the nicest man. That's just what I've been trying to get Henry to do."

Stan Hicks chuckled after the couple had gone. "Gus, it looks like you've let yourself in for a hectic evening. I'll drive far enough behind so that I won't get hit by flying objects."

GUS and Stan found the couple waiting and eager to go when they drove up to their home at seven-thirty. Mrs. Whipple took the wheel, Gus beside her, Whipple in the back seat. Gus noted that the engine had cooled off and the heat-gauge needle was down on the pin. The motor ran sweetly.

[Continued on page 240]



"The brake! Put the brake on!"





**HALF-BARREL GUN** (left) uses cartridges with plastic tips. **Combination gun** (right) takes either cellophane-wrapped "loads" or bulk compound.

# The Gun That Protects Your Home

***It squirts calking compound to keep out water and cold air.***

**Y**OU can't beat a calking gun for home defense. Once you've triggered one of these hand tools you'll find it as indispensable as a hammer or a handsaw. Better yet, it's fun to use. It works like Junior's water pistol, but the similarity ends there.

A calking gun fights back at water. Correctly handled, it does a thorough job of squeezing mastic compounds into the troublesome cracks that develop, season after season, even in the best-built homes. Whatever the weatherproofing or sealing job, a calking gun does it the neat, professional way.

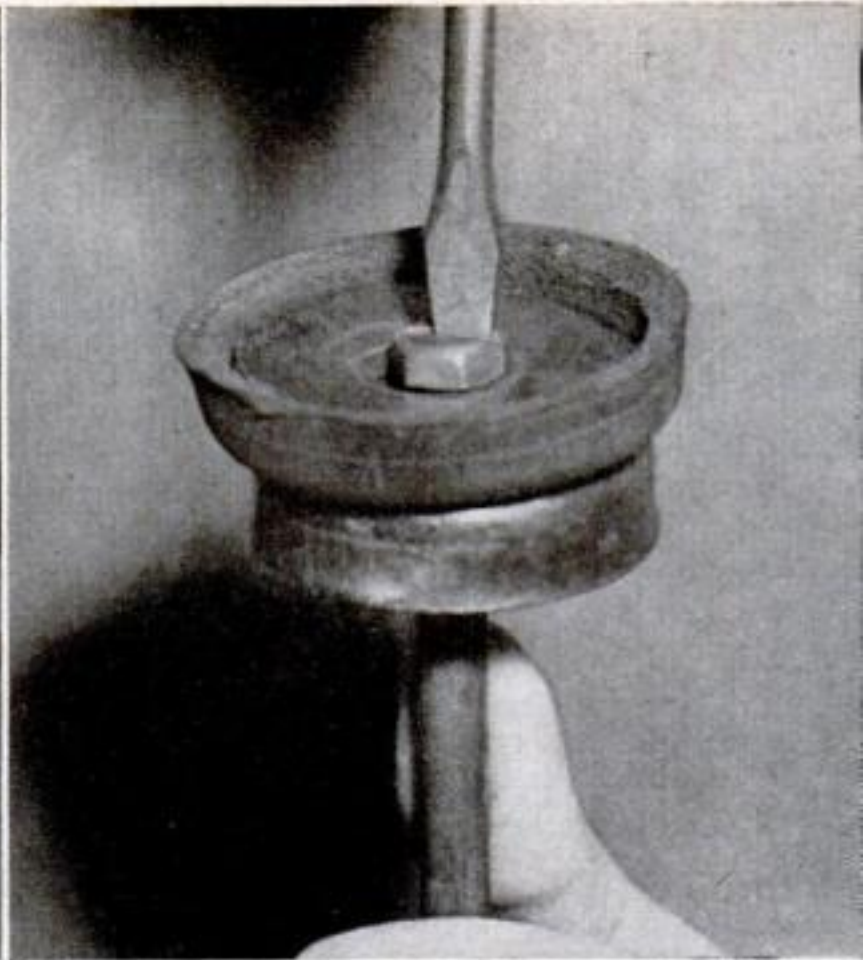
A calking gun that you can buy for a







**TO LOAD BULK CALKING** into a combination gun, take off the cap and draw the plunger back.



**TO USE CARTRIDGES** in a combination gun, remove the leather washer from the plunger.

few dollars will give you a lifetime of service and pay for itself many times over. You have three types to choose from—half-barrel, combination and pressure guns.

**Half-barrel guns.** A popular homeowner model is the little half-barrel gun, so named because its body is shaped like a semi-circular trough, with a fully cylindrical cap at each end. The forward cap may have a tip attachment. If it doesn't, there will be an opening at the center of the cap. You buy compound either in metal or heavy cardboard cartridges.

A tipless gun uses a cartridge that has its own built-in plastic tip. To operate the gun you lay the cartridge in the half-barrel with the tip projecting through the cap opening. Then you press the gun's plunger firmly against the bottom of the cartridge and puncture the seal in the tip. When you trigger the gun you're in business. The trigger ratchets the plunger forward, forcing the bottom of the cartridge into the cylinder like a piston. A smooth ribbon of compound feeds out through the tip.

For a half-barrel gun that has its own tip attachment, you can use the same type of cartridge by cutting off the container's plastic tip. Tipless cartridges are also sold for this type of gun at

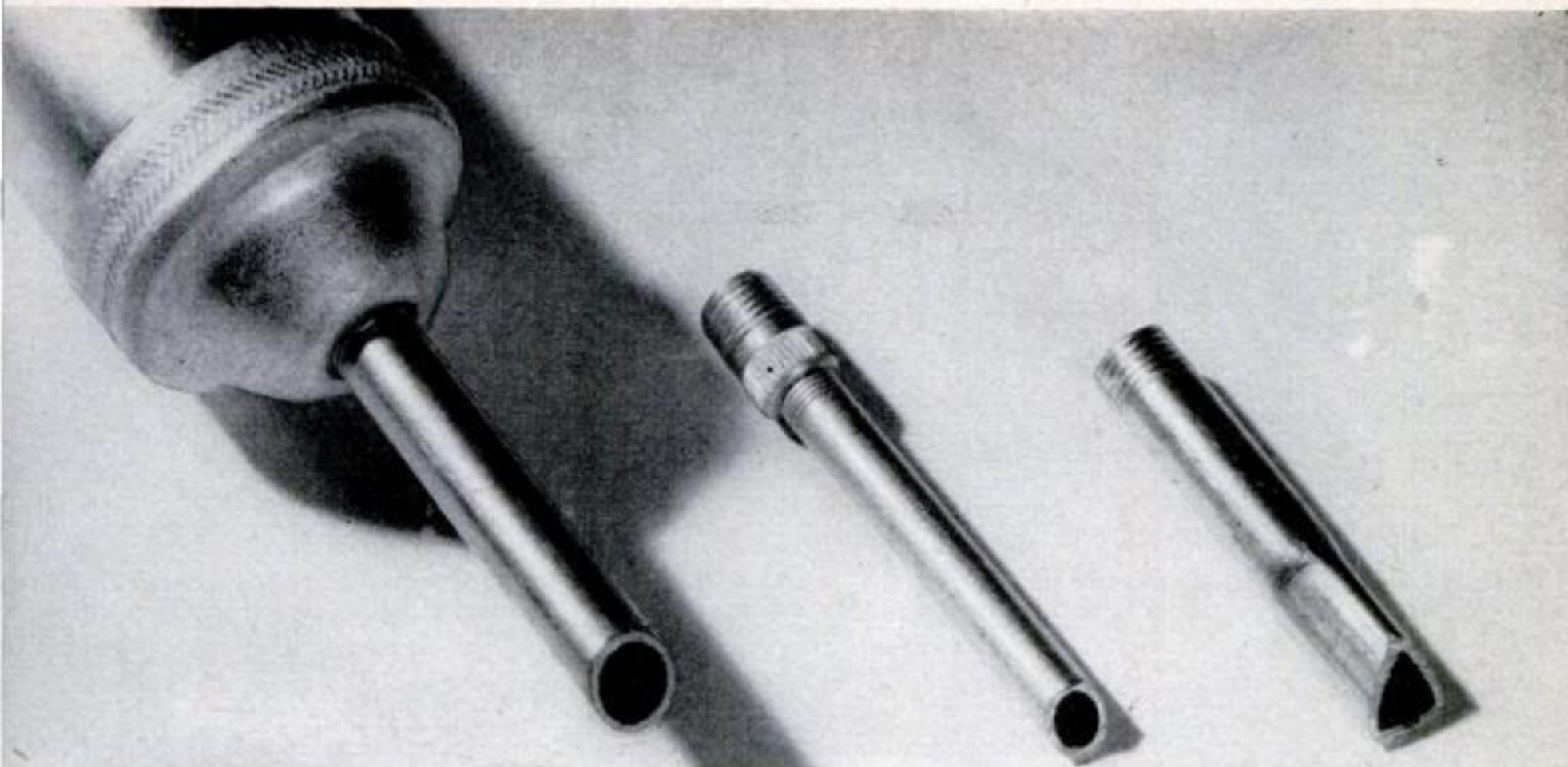
many hardware and paint-supply stores.

The advantages of the half-barrel gun are its low cost (around \$2.50) and, in the case of the tipless type, the fact that the gun never has to be cleaned unless a cartridge ruptures. Guns with tip attachments need a bit of cleaning each time a cartridge is removed. Offsetting this disadvantage, the gun with a tip attachment takes a variety of specially shaped nozzles for unusual calking, glazing and seaming jobs.

**Combination guns.** Favorite of some homeowners and most professionals is the combination gun, costing from \$4 up. This is a full-barreled job that can handle either bulk compound or flexible cellophane cartridges ("loads"). Although it uses the same triggering mechanism as the half-barrel gun, it must have a leather piston washer attached to the face of the plunger. This washer creates a sliding air seal. To load the gun with bulk compound you remove the forward barrel cap, dunk the open end of the barrel in the compound and draw the plunger rod back.

To release the plunger ratchet from the trigger for loading, or to stop the flow of compound through the tip, some guns have a rotating plunger rod. A half turn disengages the ratchet teeth. On





**METAL TIPS** for doing various calking, glazing and seaming jobs may be bought separately or

in kits of the more popular shapes and sizes. Or you can adapt a cartridge's plastic tip.

other guns, letting the trigger snap back frees the ratchet. Still a third type has a release lever on the handle.

The combination gun is both versatile (you can load it with certain types of compounds that can't be bought in cartridges) and economical, especially on big calking jobs. Bulk compound costs about 12 cents less per gun load than a cartridge. That's why professionals go for combination guns. As a homeowner, however, you may find that the ease and cleanliness of handling cartridges more

than make up for the extra dollar or so you'll spend on an occasional calking job.

**Pressure guns.** Unless you own a paint-spray compressor and have an unusually large amount of calking to do, you can write off this type. Its cost is low (about \$8), but it is strictly a production tool. It uses either cartridges or bulk compound, forcing the material out of the tip by backing the plunger with compressed air. A touch of a thumb controls air flow to the rear of the barrel.

**Special tips.** If your gun has a tip



**TO USE A GUN**, incline it at about a 50-degree angle, letting the tip straddle the crack. Move the gun along steadily while feeding the compound with an even pressure on the trigger.



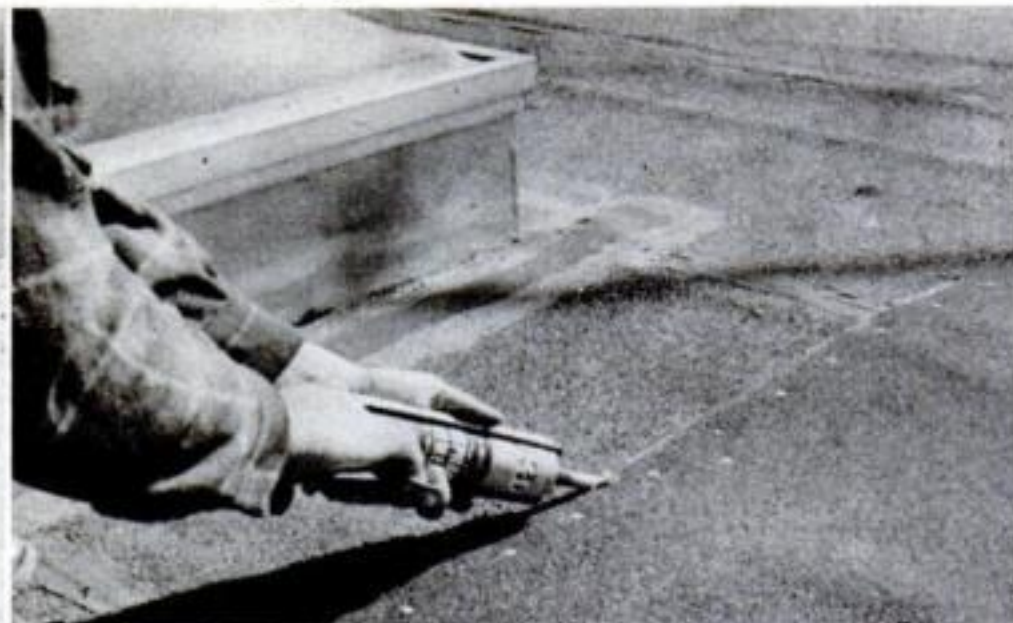
**LEAVE THE BEAD ROUND** after it is in place. Never flatten it. The heavier the bead, the greater its durability. And be sure to fill the crack to the bottom. Don't just cover it.



## Four places where you can use a calking gun .....



**AROUND DOORS.** A single cartridge usually contains enough compound to calk a door frame.



**ON ROOFS** for minor repairs. For this type of job, load your gun with asphalt-base calking.

attachment it will probably come with a standard  $\frac{3}{8}$ " oval nozzle—the most useful type for ordinary calking. For special jobs you can buy extra tips with openings that range from  $\frac{1}{8}$ " to  $2\frac{1}{4}$ ". The openings may be round, oval, flat or triangular. A good bet is an assortment of four tips in a kit that sells for around \$1.25. With one of these kits, you can handle practically any home calking job you're likely to run into.

Even with plastic-tipped cartridges, you can vary the shape and volume of a calking bead to some extent by applying more or less side pressure to the flexible plastic nozzle as you trigger the gun. Better yet, soften the tip by soaking it in hot water, then model the plastic to the desired shape. When it cools, it will retain the form.

**Choosing the right compound.** Your choice of compound can make the difference between a good job and a bad one. Low-grade compound may be lumpy. It may not bond properly. It may also shrink, harden, crack or stain excessively. If the compound is packaged in inferior cartridges, they may break open at the seams. A low-grade cartridge often calls for excessive triggering pressure to produce a flow. When this happens, it is generally because the cartridge has not been lined with wax to make the compound ooze out easily. Top-grade compound is almost always labeled: "Meets Government Specifications."

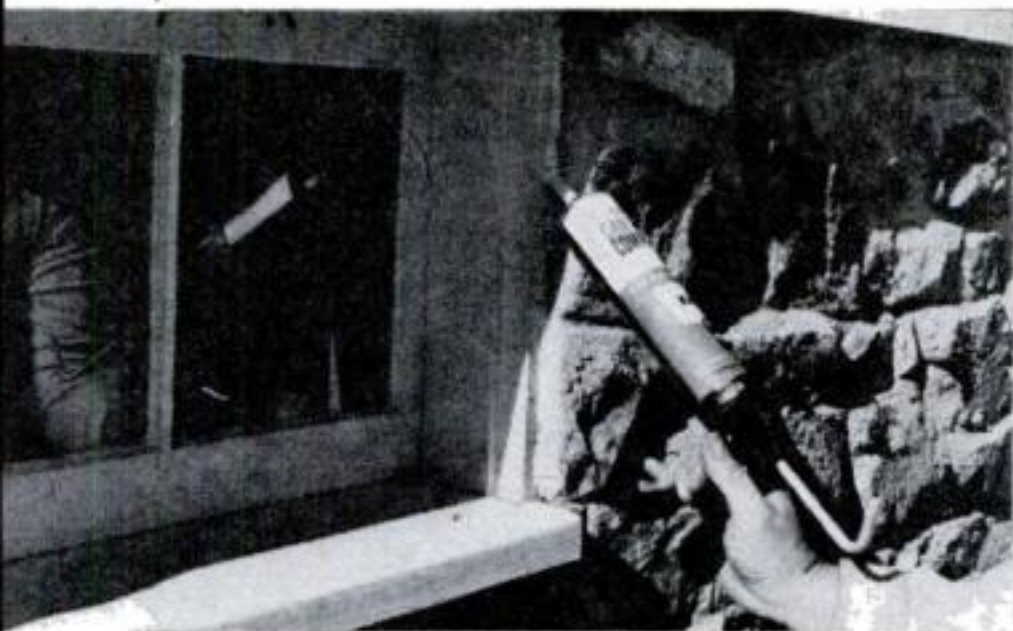
Choose the right type for a particular

job, too. When you walk into a paint store and say, "I want a cartridge of calking compound," chances are you'll get a cylinder of brown-gray goop. That's fine if you plan to paint over it afterward. But if you are doing an inside job around the edges of white tile, you can save a lot of extra fuss by asking the salesman for "pure white" or "brilliant white" compound.

**Asphalt calking.** For exterior work that calls for a particularly durable and elastic compound, your best bet may be asphalt. Although it will adhere to any surface, wet or dry, its surface loses its tackiness after it is applied. Asphalt calking is especially useful for repairing small roof leaks and for sealing flashing around chimneys, skylights, gutters and the like. If you plan to paint over asphalt calking compound, ask for the "non-bleeding" type.

Suppose you want a batch of compound of a particular shade or color to match adjacent surfaces. You can't buy this tinted compound in cartridges, but if you have a gun that takes bulk compound you can mix your own color blend. A half-pint of coloring solution—pigment ground in oil—is about the right amount for a gallon of compound. After you have added the color—there's usually room for it in the top of a gallon can of compound—close the lid tightly and have your paint supplier put the can in his mechanical shaker for a two-minute session.





**AROUND WINDOWS.** Calk those in basement on all four sides, both inside and outside house.



**AROUND TUBS.** Because compound may attack plastic tile, protect it with masking tape.

**How to use a calking gun.** Use as much care in preparing surfaces for calking as you do for a good paint job. Remove all loose material—chipped masonry, rotted wood, peeling paint, etc. If you are calking over wood, make sure that it is dry. Do not calk if the weather is damp or the temperature is below 40 degrees. To make calking easier to trigger on cool days, warm it before loading the gun. For the best bond, swab the area to be calked with a rag moistened with turpentine or mineral spirits.

To fill a crack, incline the gun at about a 50-degree angle. The tip should straddle the crack so that the calking is ap-

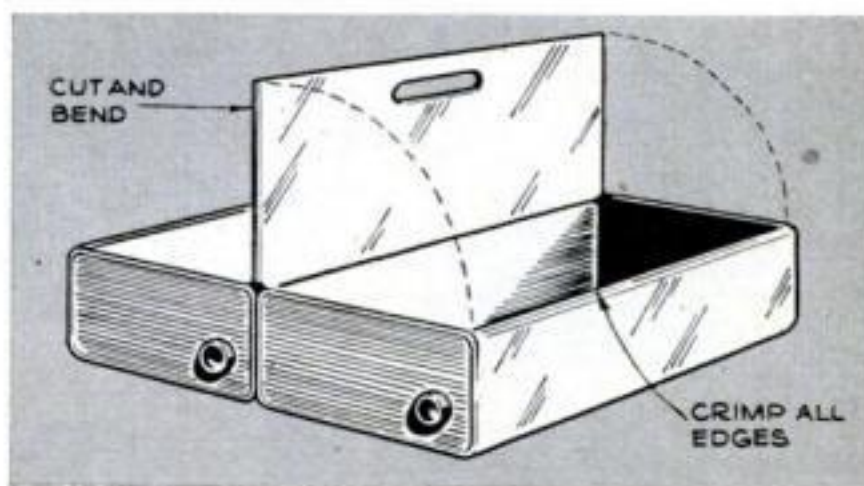
plied equally on both sides of it. Be sure to *fill* the crack—don't just cover it. Also, once you've laid down a bead don't flatten it; its surface should always be convex. When you calk an opening that is wider than  $\frac{3}{8}$ " or deeper than  $\frac{1}{2}$ ", pack the area with oakum, rope, mineral wool, plaster, wood or felt before applying compound.

Once you get the knack of handling the gun, you'll find that you can calk a whopping 10' crack in under 30 seconds. To estimate the amount of compound you'll need for a particular job, figure on from 20' to 22' of cracks per standard-size cartridge or gun load. END



### Acetone Cleans Tin-Can Stock

MOTOR-OIL and antifreeze containers, especially the 10-quart size, provide large pieces of useful sheet metal for many projects. You can clean off printing, dirt and grease with acetone, or nail-polish remover, rubbed briskly with fine steel wool. No further treatment is needed before soldering or finishing.

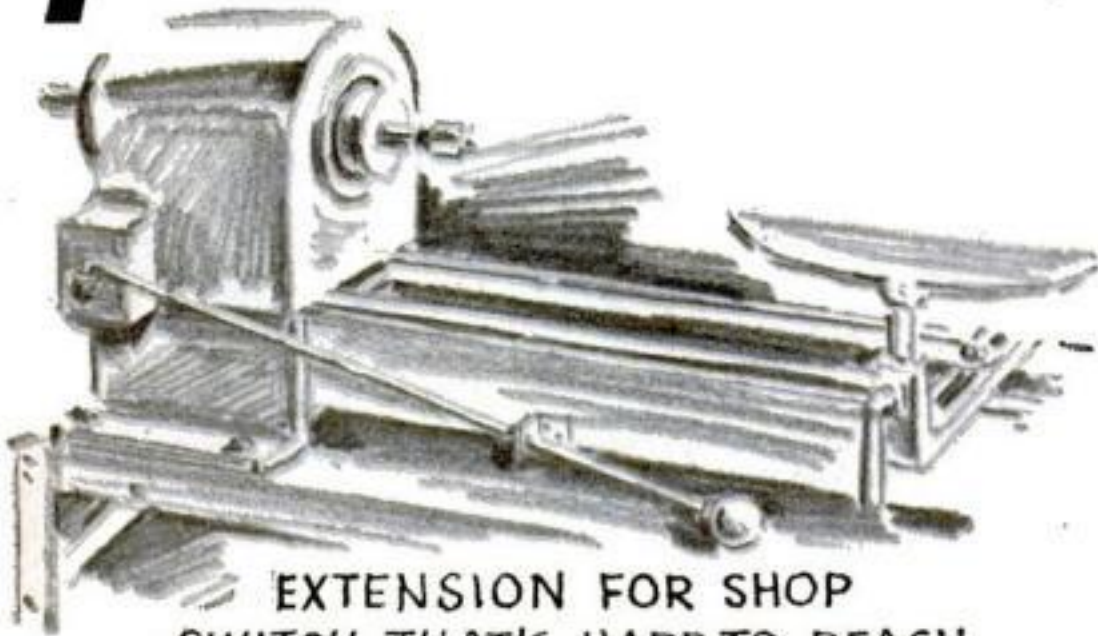


### Oil Cans Tote Tools to the Job

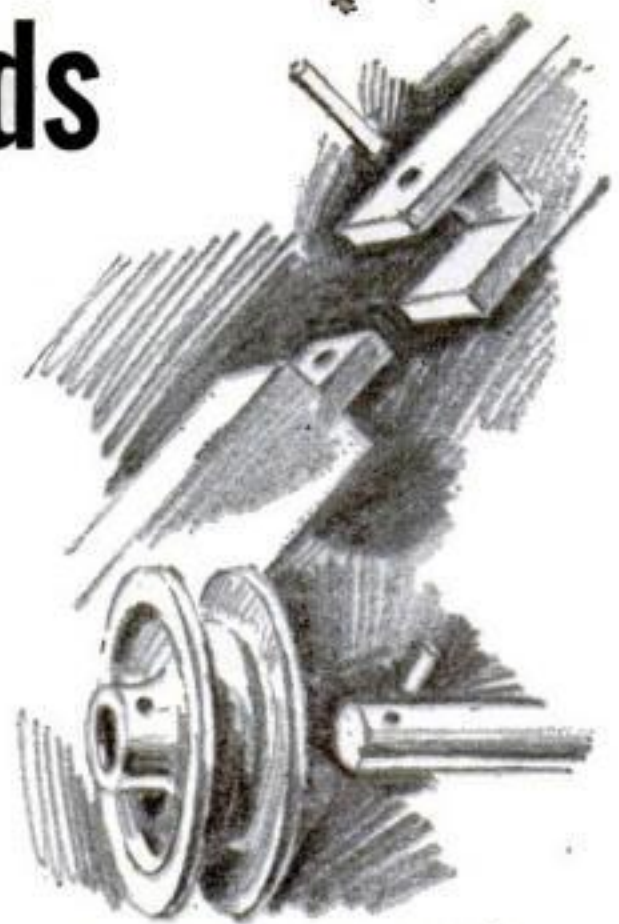
Two large oil tins make a good tray for carrying tools. Cut open the side of each can as shown, bend up the resulting flaps and crimp them together. An oblong hole cut in the joined sides forms a carrying handle. Crimp and file smooth this edge, too, to keep it from cutting your hands when you grip it.



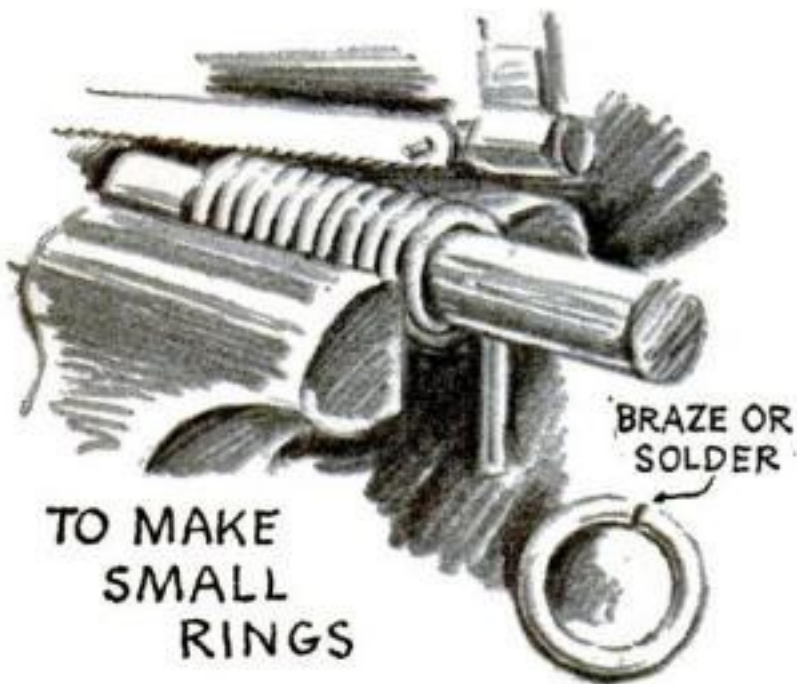
# 7 USES FOR Welding Rods



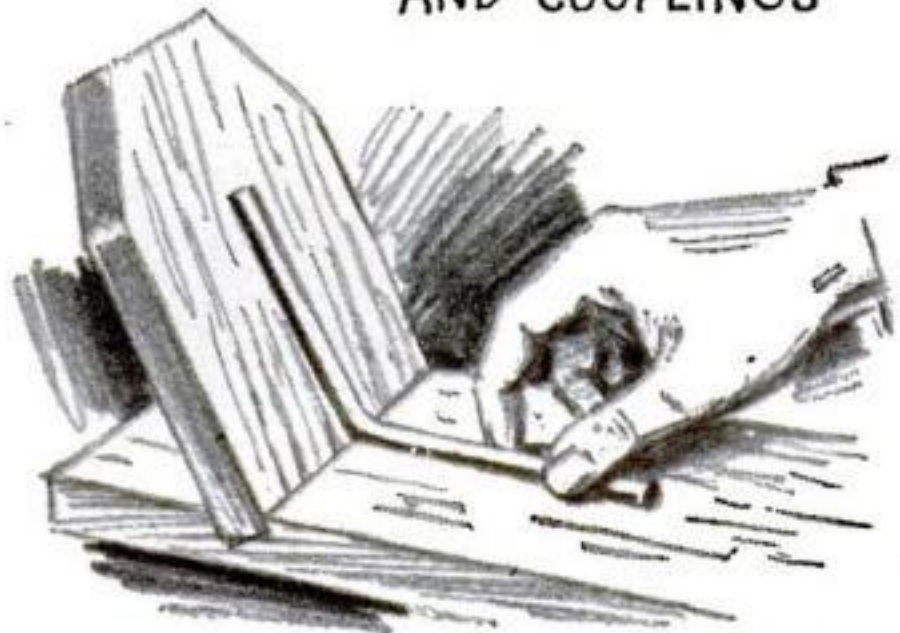
EXTENSION FOR SHOP  
SWITCH THAT'S HARD TO REACH



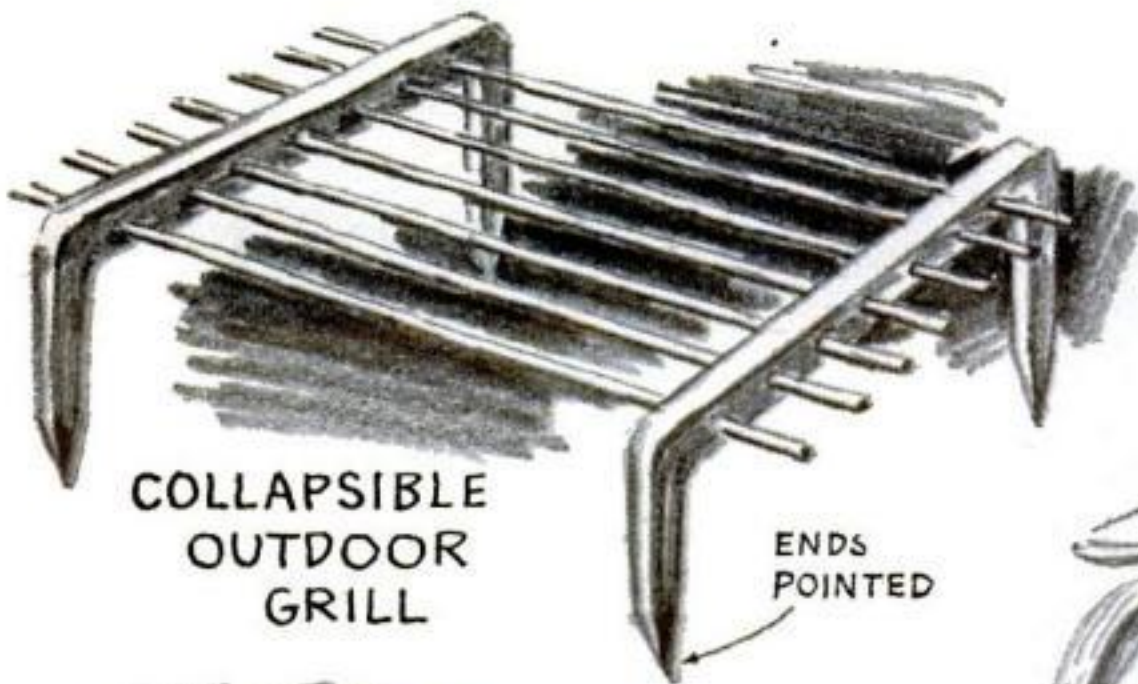
PINS FOR PULLEYS  
AND COUPLINGS



TO MAKE  
SMALL  
RINGS

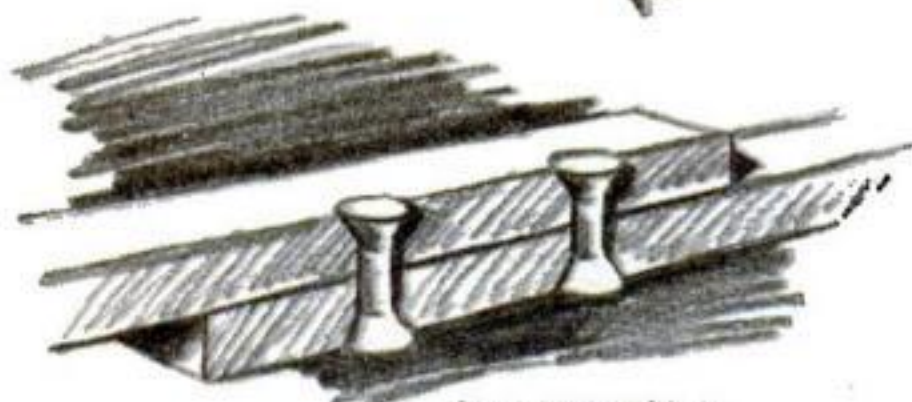


FOR DUPLICATING  
ANGLES

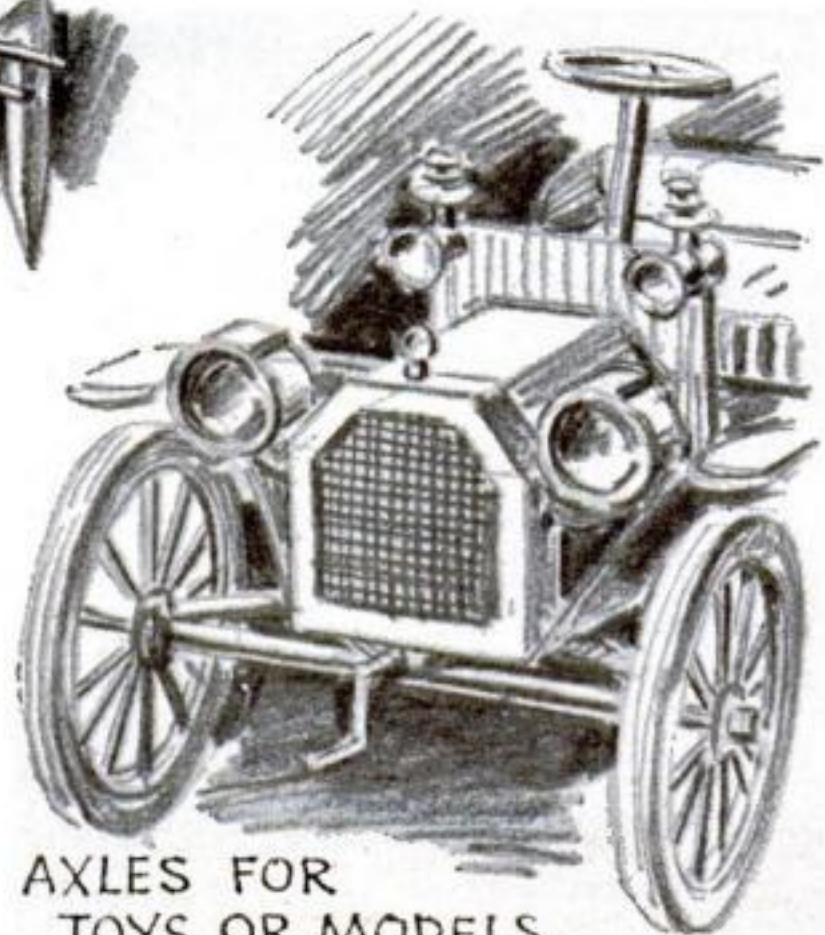


COLLAPSIBLE  
OUTDOOR  
GRILL

ENDS  
POINTED



RIVETING



AXLES FOR  
TOYS OR MODELS

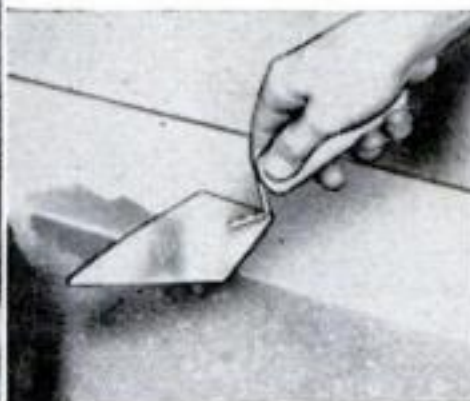




# New for the Handyman

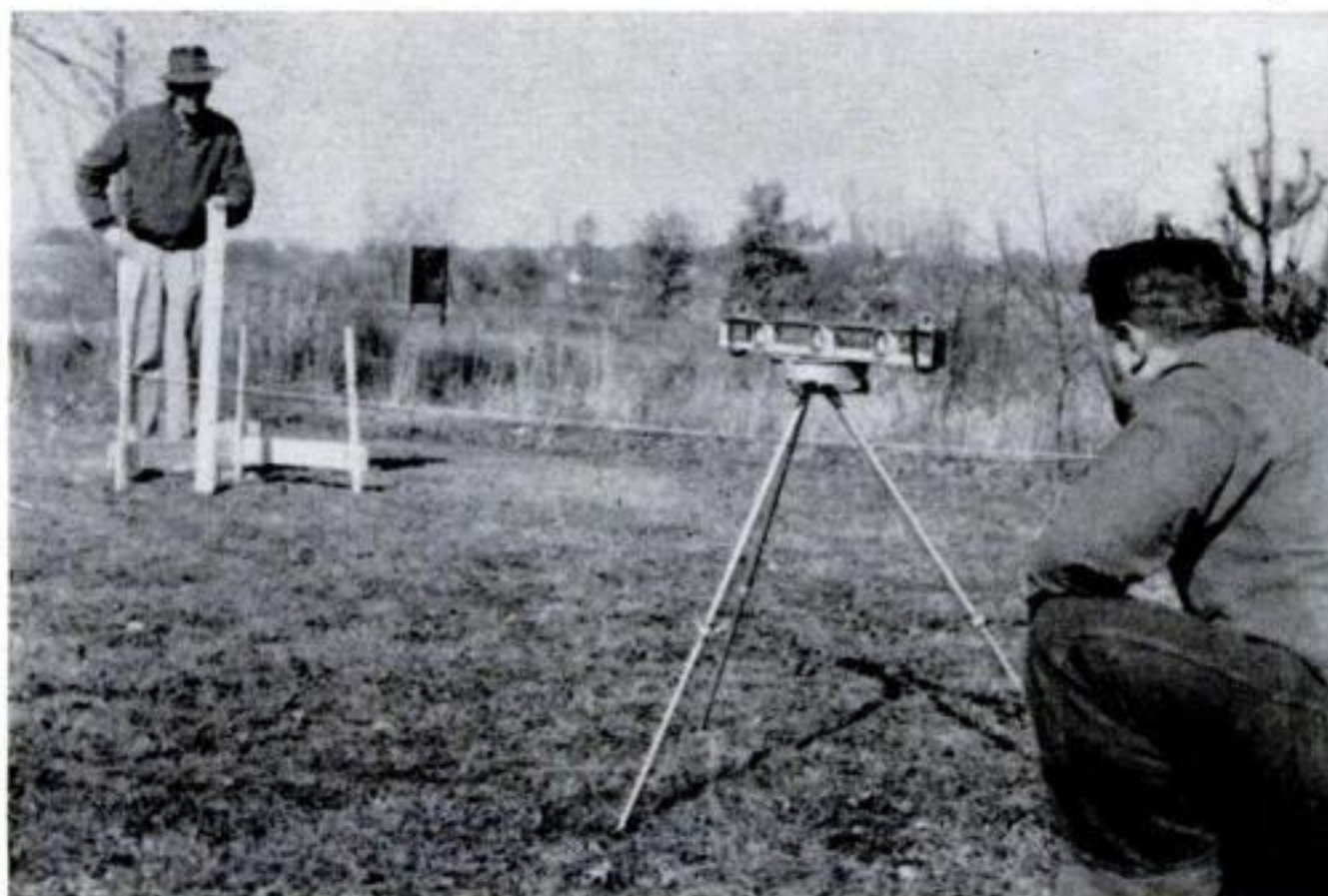
**1. You Get a Free Trowel.** A new repair and resurfacing material remains pliable for two hours, making it easy for you to get a professional finish or mold a corner or other contour. It is a special-blend powder that is mixed—in any quantity, from a thimbleful up—with liquid rubber latex instead of water. Used for

all masonry surfaces, including concrete, brick and stone, it adheres also to wood, metal, slate and glass. A kit contains 10 pounds of the powder, a quart of latex and a free trowel to do the job.



## 2. Tool Repairs Faucets.

When a new washer doesn't stop drip, you can reseal the faucet with this abrasive tool. A collar aligns it in the fixture. The tool comes with backing plates and waterproof abrasive disks for  $\frac{1}{4}$ ",  $\frac{3}{8}$ " and  $\frac{1}{2}$ " sizes. Available with it in a kit or separately are ball-bearing, nylon-capped washers said to be long wearing.



## 3. Tripod Level.

Here is a new type of low-cost transit that is basically a spirit level equipped with sights and mounted on an adjustable tripod. It will give accurate readings for leveling a wall, foundation, or other project. With the level off its mount, you can fold the tripod to fit your toolbox.

**Please turn the page for more handyman tips**

SEPTEMBER 1956 199



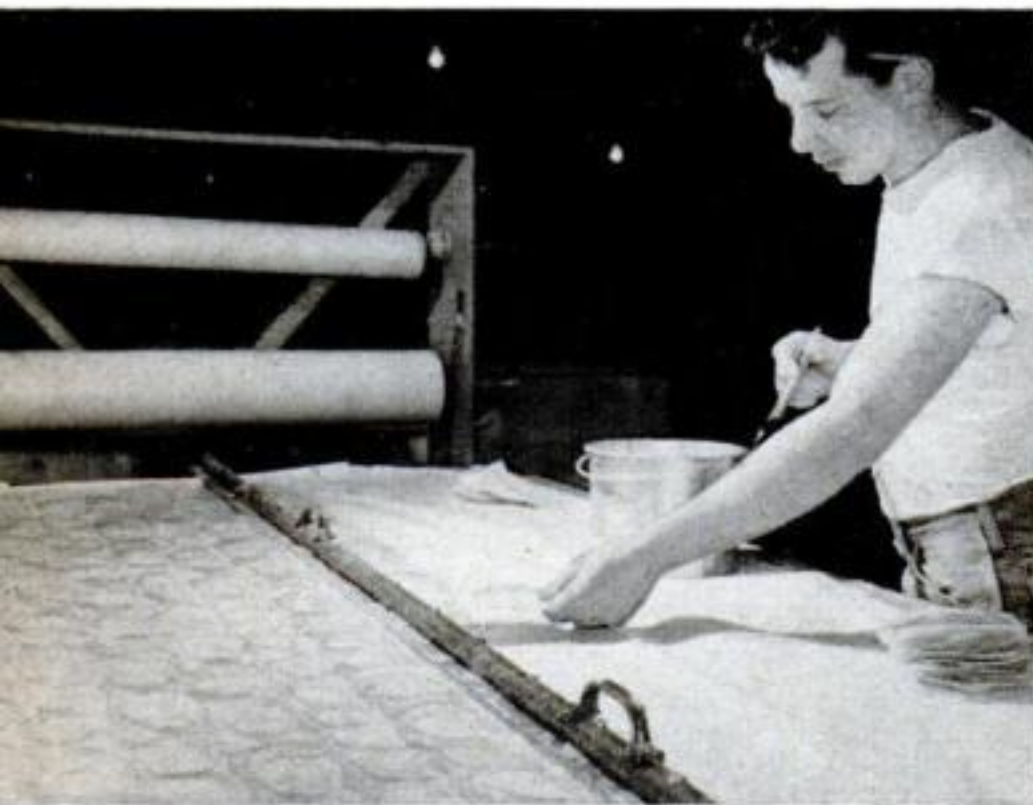
## More Handyman Tips



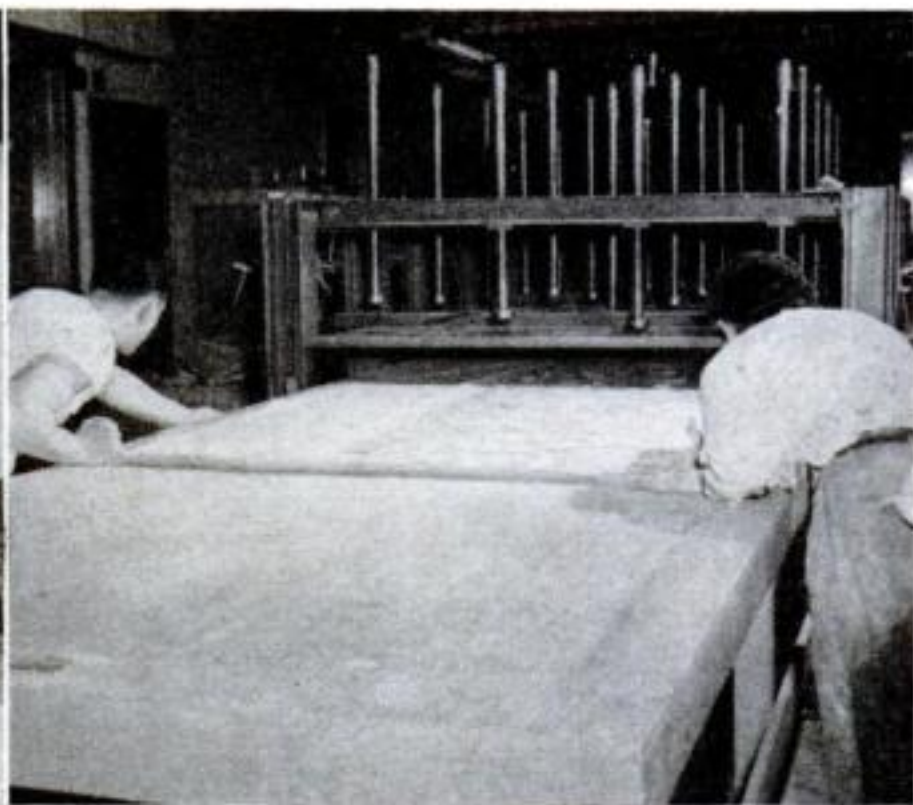
**4. Paintbrush Cleaner Is Re-usable.** Work a brush or roller in this emulsifier and you can rinse the paint out under tap water. Paint particles do not dissolve, but settle in the liquid, which can be poured off for re-use. The liquid will clean a surface for painting, take paint off hands, or seal paint left in a can.



**5. Metal Tape Trims Corners.** Straightening the joint between a ceiling and wallboard, or finishing an inside or outside corner, is made simpler by this trim which consists of two metal strips mounted on heavy paper. It comes in 100' rolls. You cut off the needed length and apply it with wallboard joint cement.



**6. Mother-of-Pearl Put in Wall Panels.** Iridescent walls, like those in the powder room of the palace in Monaco and the lobbies of sumptuous Miami Beach, Hollywood and New York hotels, are now being made in 4'-by-8' panels. You can nail them up yourself for about \$6 a



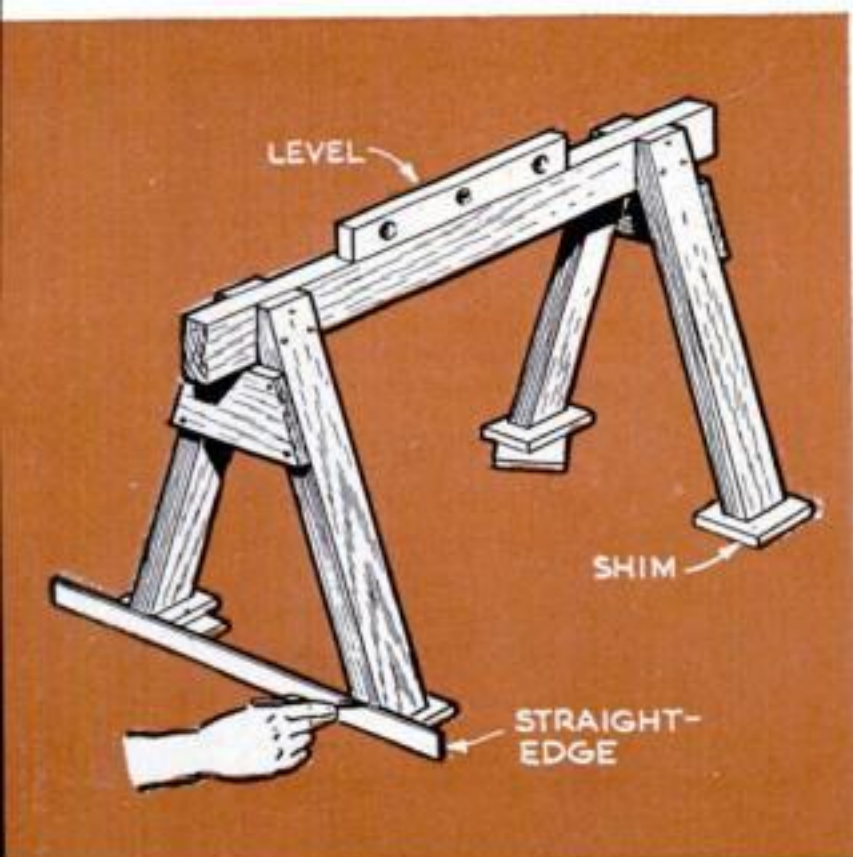
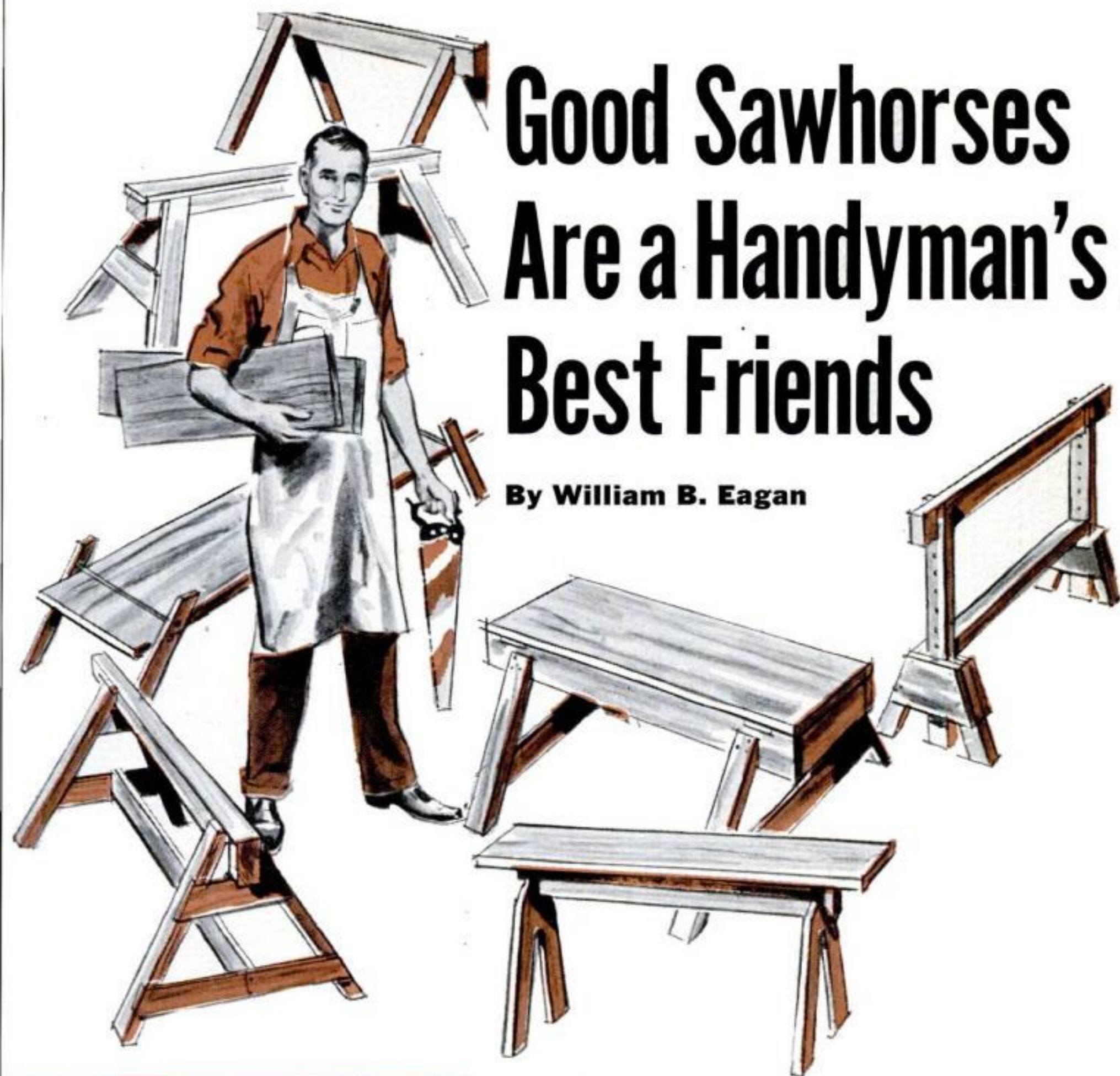
square foot. Two steps in the manufacture are shown above: at left, prepared ocean-pearl shells being coated with adhesive and placed on a backing, and at right, a sheet being slid into a press to make the bond permanent before bur-nishing. Panels come flat or curved.

More information about the products on these pages can be obtained from: 1. Latex Concrete Co., 10 W. 70th St., Chicago; 2. Ardmore Products Co., Conshohocken, Pa.; 3. Treo Corp., Colchester, Ill.; 4. Rinn Products, 2929 N. Crawford Ave., Chicago 41; 5. Steel Corner Tape Co., 121-07 133rd St., S. Ozone Park, N.Y.; 6. Kappa-Shell Products, Inc., 121 W. 17th St., NYC 11.



# Good Sawhorses Are a Handyman's Best Friends

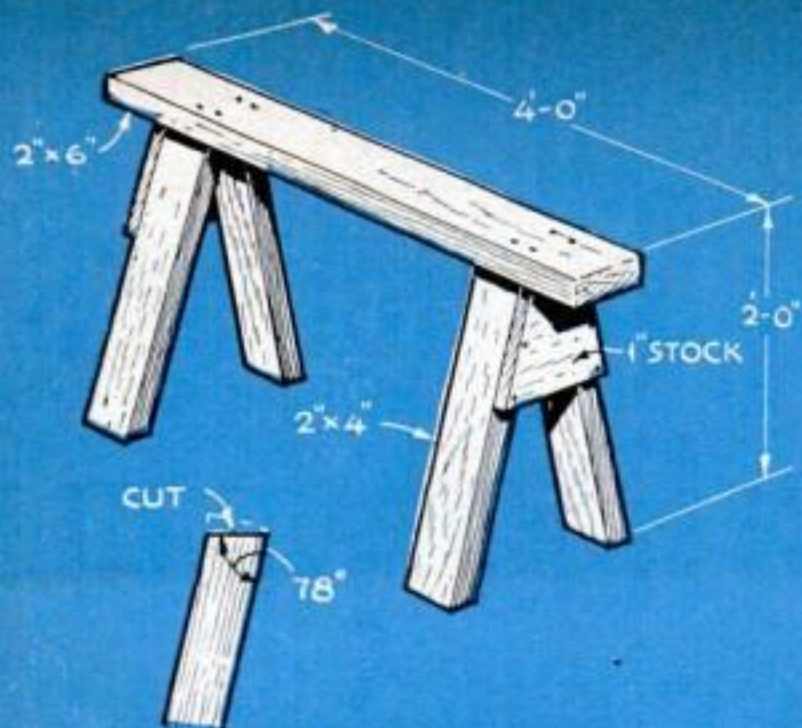
By William B. Eagan



**S**AWHORSES are good for more than sawing. You need them for a portable workbench, a scaffold to stand on while you paint, even a see-saw for the kids or a bench for a picnic. Good, solid ones are easy to make, and you can often use scrap pieces of lumber.

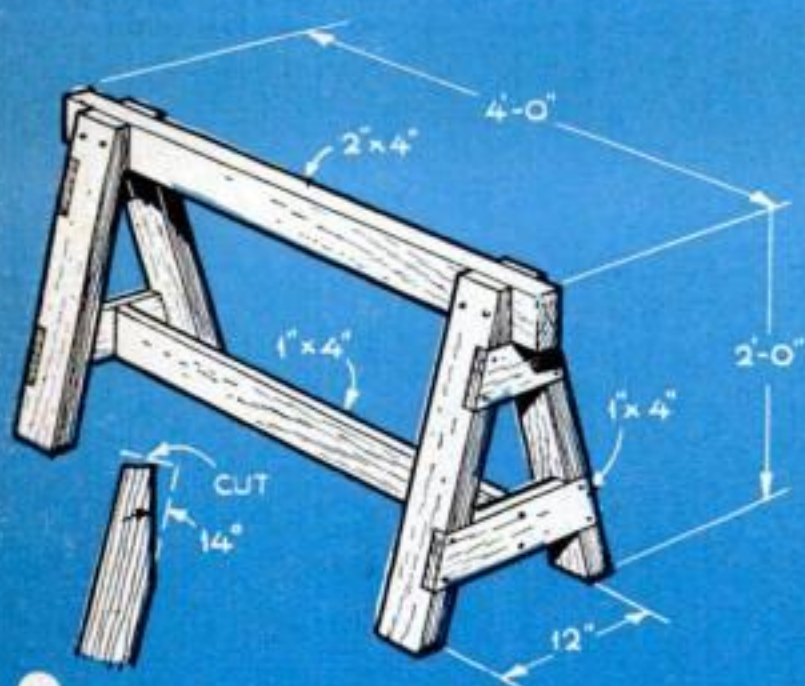
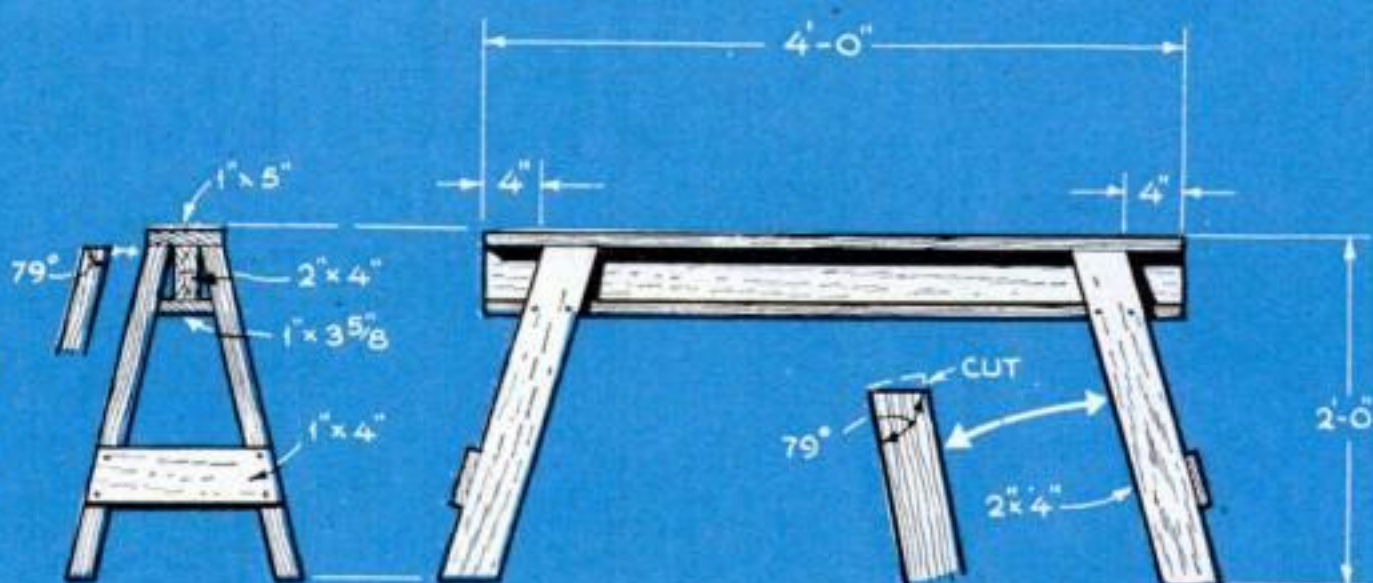
The only construction step that might puzzle you is cutting the leg ends. The angles for the tops of the legs, where they join the rail, are marked on the drawings. To get the bottoms angled so that the horse stands flat on the floor, cut them after the horse is assembled. Place a level on the rail and shim each leg with thin wood until the level bubble is centered. Then set a straightedge on the floor alongside the legs and mark them for cutting. On the two following pages are plans for nine sawhorses.





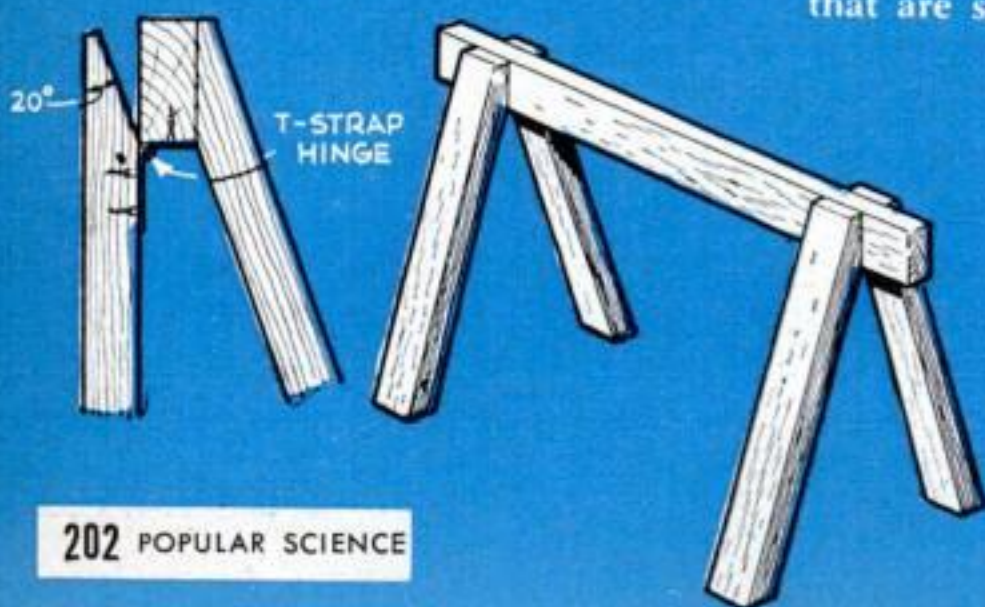
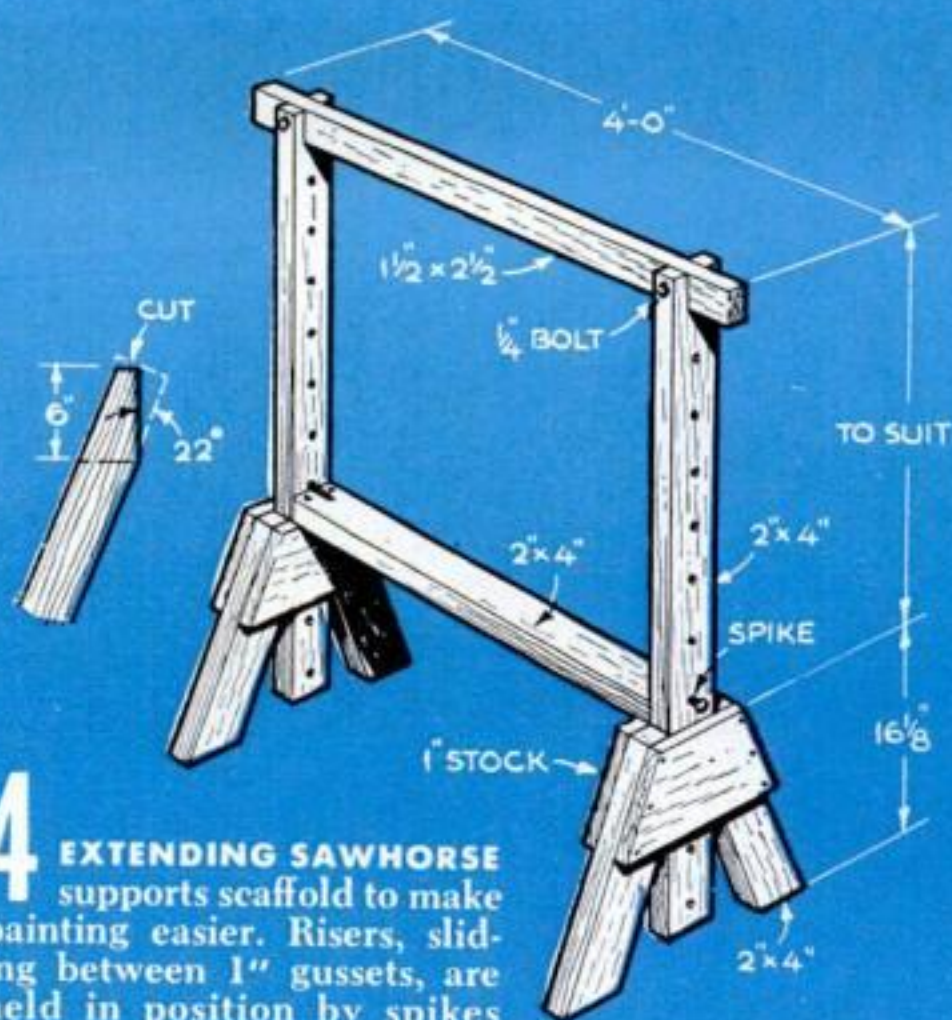
**1** SIMPLE AND EASY TO BUILD, this horse is one of the most popular. Rough use, however, may eventually cause the rail to work loose.

**2** STURDIER TYPE has I-beam rail built up from two 1" boards and 2"-by-4". The splayed legs make it a steady horse to use.



**3** REALLY RUGGED for hard work, sawhorse above uses 2"-by-4" legs and rail. It is heavily braced with set-in sidepieces, extra rail.

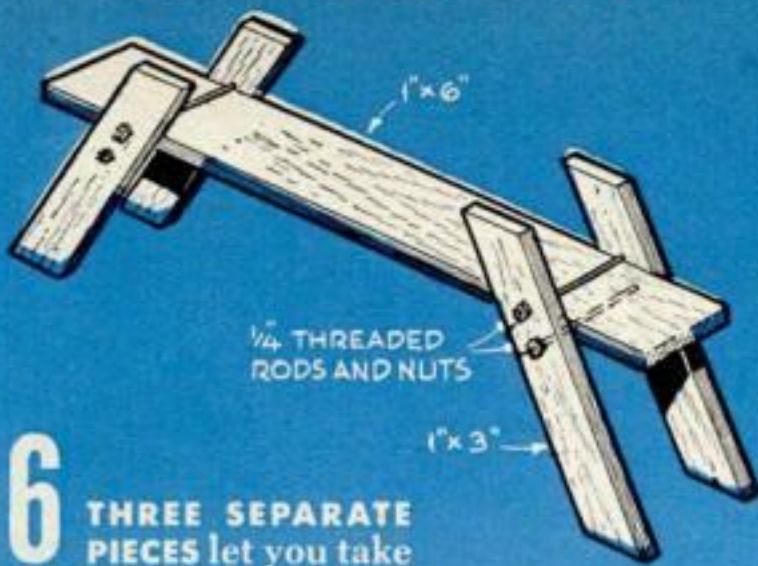
**4** EXTENDING SAWHORSE supports scaffold to make painting easier. Risers, sliding between 1" gussets, are held in position by spikes that are set in drilled holes.



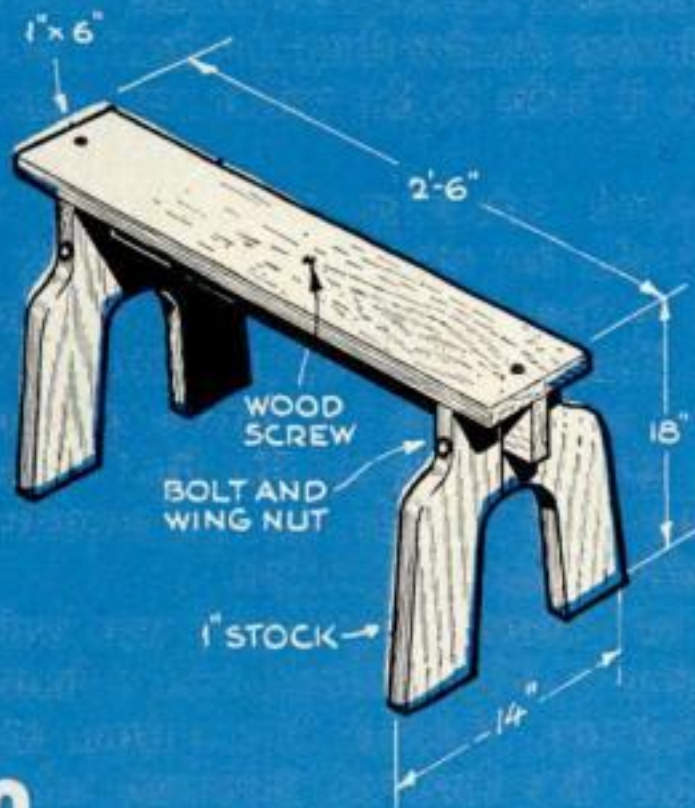
**5** HINGED HORSE folds flat when you lift it so that it is easy to store and to carry through doorways. This variety is best suited to light work.



# How to Make the 9 Most-Wanted Sawhorses

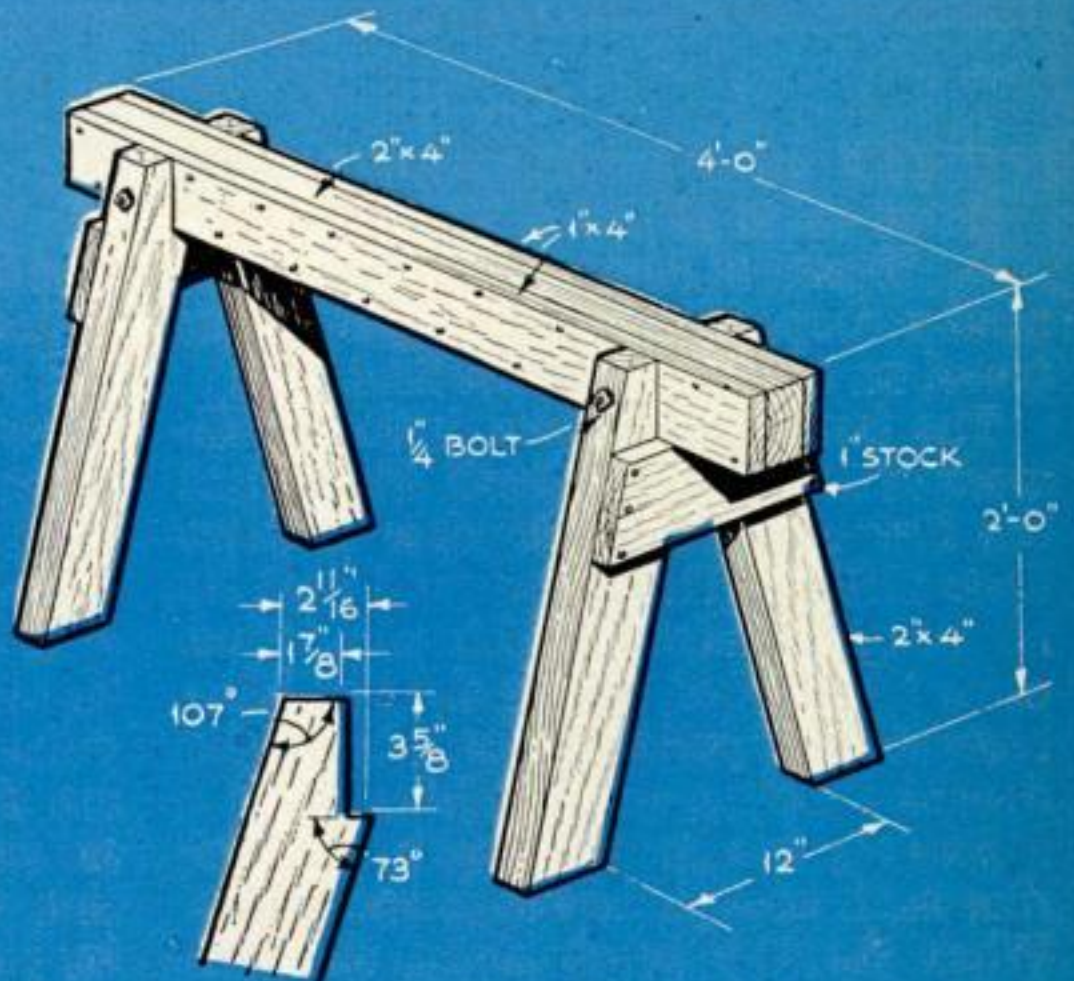


**6** **THREE SEPARATE** **PIECES** let you take this one apart without removing any nuts. Weight pressing down on the board holds it together in use.

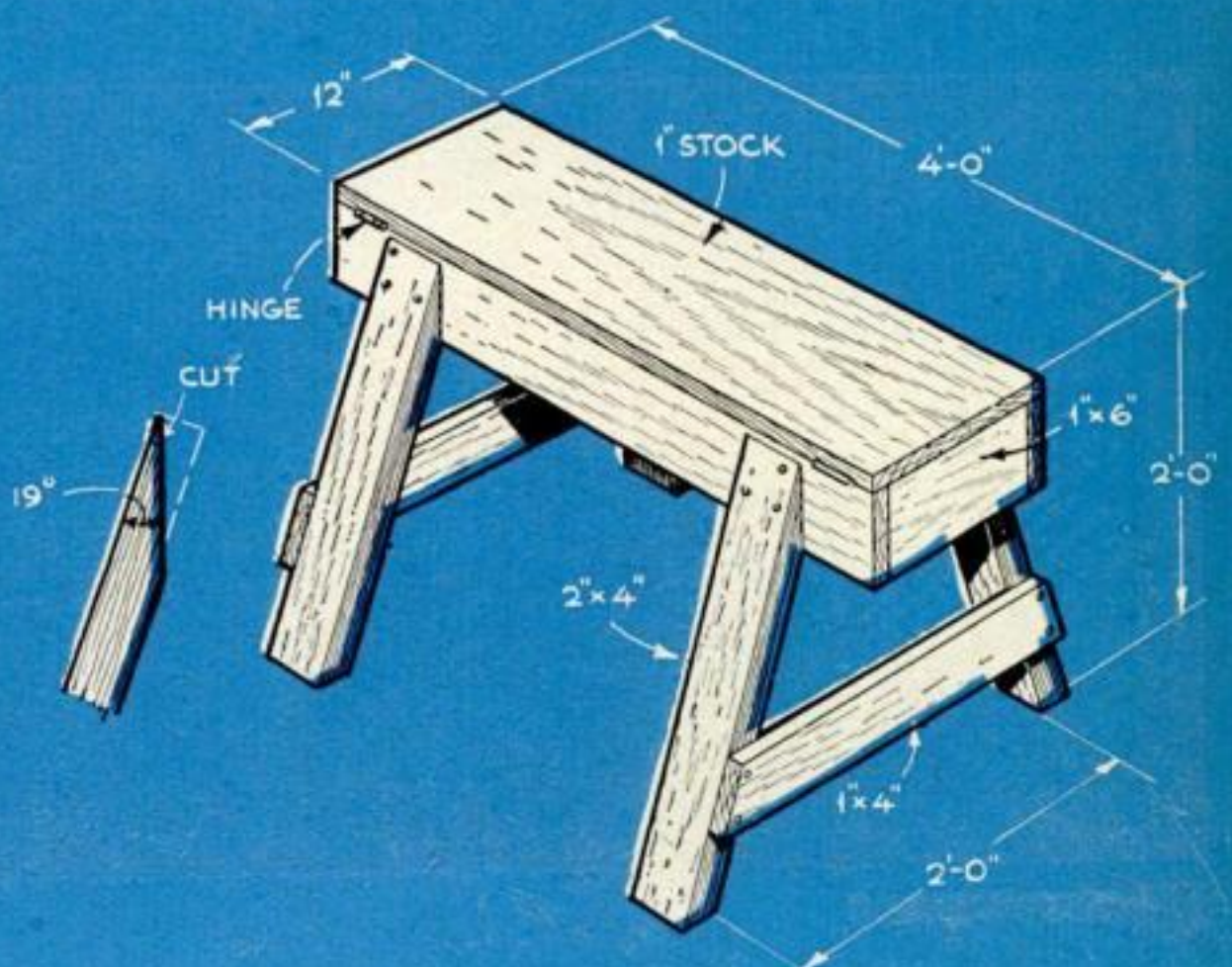


**8** **BENCH HORSE** looks good enough to serve in living quarters, but is really a fancy knockdown type. Each leg is made of two curved sections.

**9** **TOOL-CARRYING** horse is a carpenter's favorite. It is a simple box with hinged lid and sturdy legs. A shelf may be added across the braces.



**7** **STURDY KNOCKDOWN MODEL** has legs that slide into built-up notches in the rail. Long bolts hold the legs firmly in position.





# Twin Bikes Carry the Whole Family



**T**HE cost of gasoline means nothing at all to Mr. and Mrs. James H. Weeks of Ames, Iowa. They don't need a drop. They and their youngsters travel on a bicycle-built-for-four.

The family conveyance is the handiwork of Jim Weeks himself. He bought the first bike to ride to class at Iowa State College. This was a good deal. So he bought another for his wife. Then came the idea of bolting the two bikes together and putting seats between for daughter Kristan and son John.

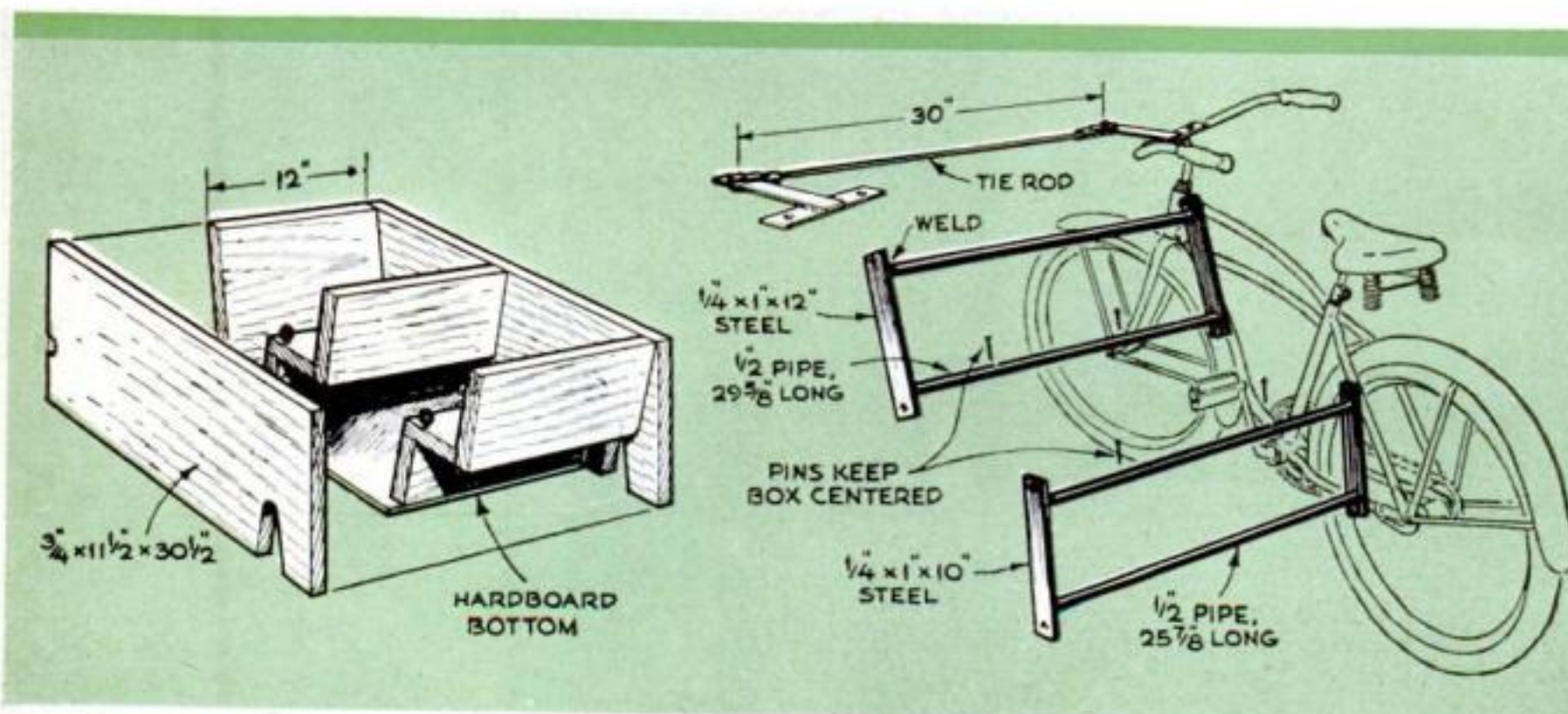
*The rig is safe and sturdy*, yet handles easily enough for one person to ride. When the kids aren't along, the two-seater box in the middle can be slipped out or used as a shopping carrier.

The two bikes have identical frames. They were fastened together with cross braces made of iron pipe welded to  $\frac{1}{4}$ " strap-steel end plates. The end plates were bolted to each bike's tubular frame.

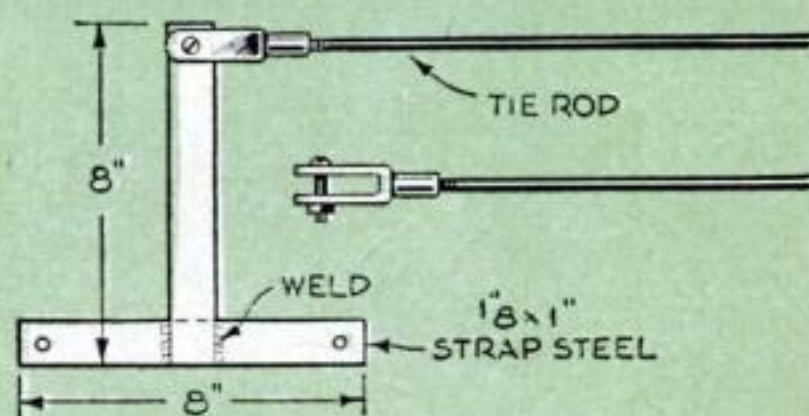
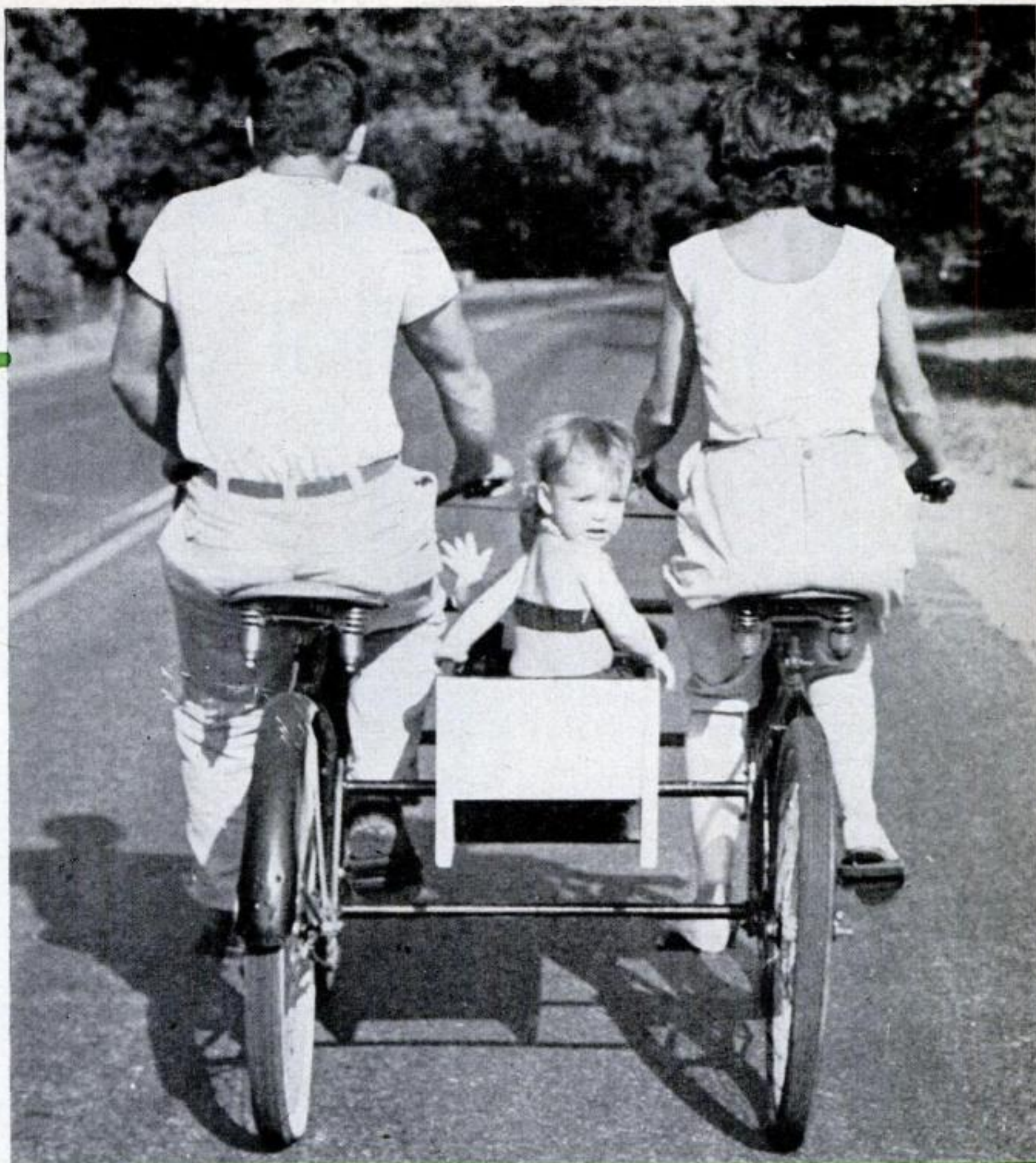
The front cross brace was made up first, bolted on, and the bikes then set parallel and measured for the rear brace. This is a few inches shorter than the front brace because it bolts to the wider rear-wheel forks.

T-shaped extension arms bolted to each handle bar are linked together by a tie rod so that the front wheels turn together. The tie rod is an old auto brake rod that had a threaded fork connector on one end. By varying the fork's position, the rod's length can be adjusted for perfect wheel alignment.

The two-seater baby buggy was built from pine one-by-twelves with a hardboard bottom. Notches in the front end hook into the forward crossbar, while slots near the back drop over the rear crossbar. This locks the box securely in, yet allows it to lift out without unbolting.







**STEERING ARM**, made by welding  $\frac{1}{8}$ " steel strap into T shape, is bolted to center of each handle bar. Tips of arms are linked with tie rod so that wheels turn together.



**You can learn something useful about television, and maybe about people, from these**

# Domestic Troubles of a TV Repairman

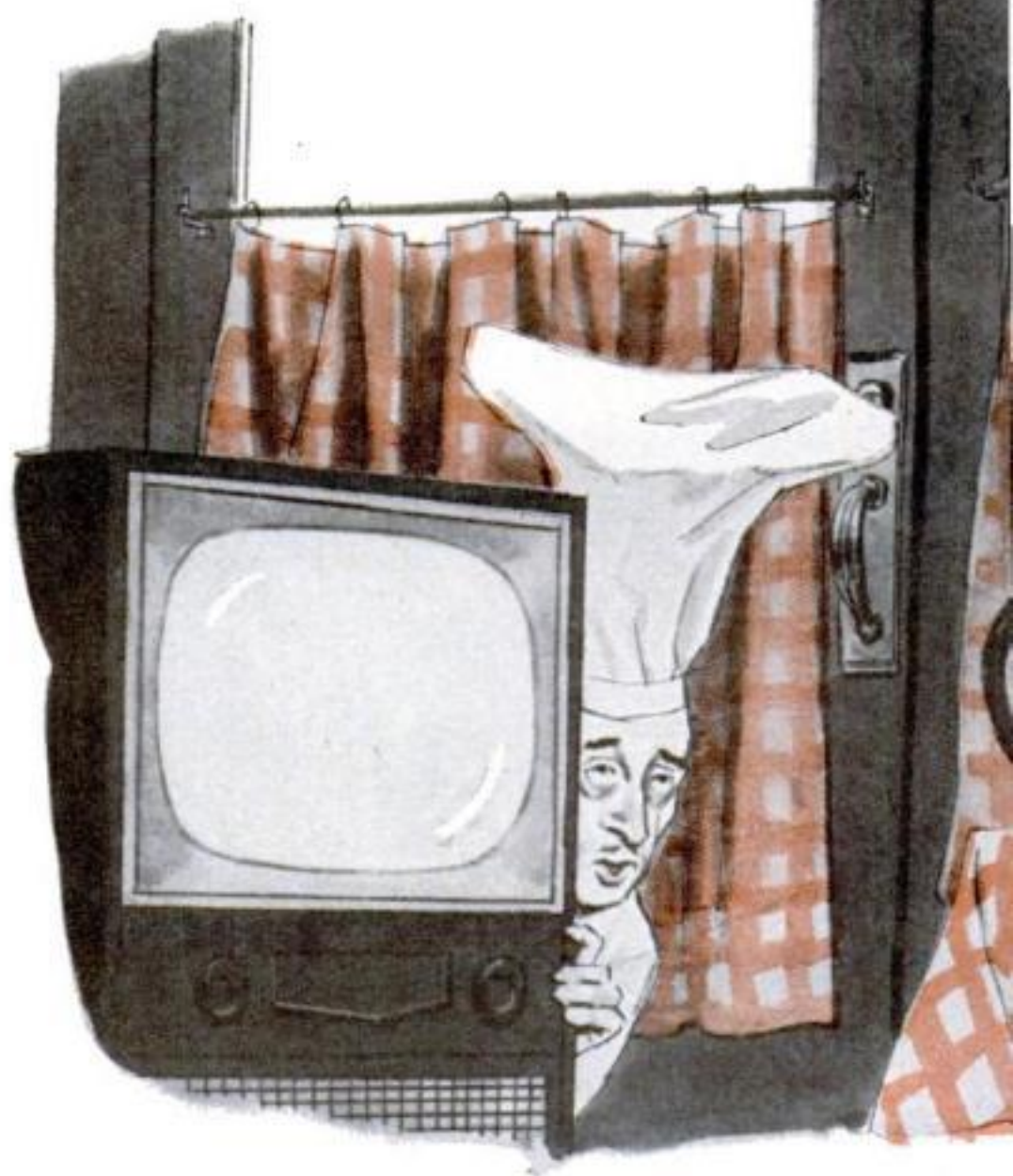
**By Art Margolis**

**R**EPAIRING a TV set can mean patching up a spot of domestic trouble at the same time. Innocently coming to doctor a chassis, the serviceman may find himself involved in a family crisis.

I ought to know, for my own jobs have brought me up against domestic-relations cases ranging all the way from a whining dog to a wife who threatened to plaster hubby with a pizza pie. I even ran into a problem like this in my own home.

Like people and icebergs, electron tubes live seven-eighths of their lives beneath the surface of things. Tubes may light and seem to be working hard, while actually goldbricking on the job. That was the trouble in four service calls that turned out to involve human as well as TV troubles. Take, for instance:

## The Case of the Stay-at-Home Housewife and the Disappearing Diode



**S**OMETHING besides a nonfunctioning TV set was bothering the pretty young housewife who let me in one morning. But her other troubles were none of my business—I thought. The 17-inch picture showed four-sided shrinking when I turned it on. After a few seconds it blacked out.

Diagnosis was a cinch. Inside the brightly lit 5U4 rectifier tube was a bluish glow that plainly said “guilty.” This tube was a diode, which is the simplest kind





The boss's wife was hefting a big pizza pie as if trying for good aim. "You tune it that way on purpose," she shrieked, "so I won't see my candidate."

*Fred Yarrow*

of electron tube. It has only two elements. One is the cathode, which may be the filament itself, or a sleeve heated by the filament. Coated with thorium, it shoots out a stream of electrons.

The other element is the plate, which cannot emit electrons but makes a fine target for those coming from the cathode. That stream of electrons constitutes an electrical current.

The function of a rectifier tube is to change alternating current from the house line into direct current for use in the TV circuits. On that half of the AC

wave during which the electron-emitting cathode is negative, the electron stream carries current to the plate. But on the other half of the wave, when the non-emitting plate is negative, the electrons crowded there cannot get off and no current passes. Since only half the AC gets through, it becomes direct current.

Not all the electrons from the cathode reach the plate; some float around, creating what is known as a "space charge." They also get in the way of the electron stream, keeping some of it from the plate. But the tube is designed to deliver



enough juice even with such a handicap.

The vacuum of this 5U4, however, had been invaded by some exterior gases, which absorbed the space charge. With this out of the way, the full electron stream was hitting the plate. For a time the tube carried more current than it was ever meant to. Then the overload took its toll, the damaged tube could no longer deliver a strong DC supply, and the starved picture circuits blacked out.

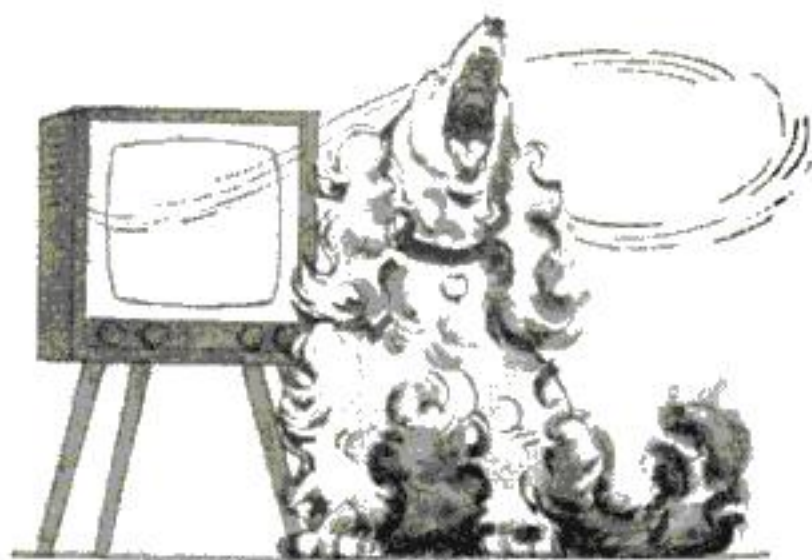
When I changed the rectifier tube, the picture burst on bright and crisp. I left it that way, only to get a call from the same customer the next day.

There was an empty socket where I had installed the new 5U4. Asking no questions, I put in another.

The third morning I was called again. On looking into the set, I began to wonder. That 5U4 socket was empty again!

"Who's been eating the tubes?" I asked the young housewife.

With downcast eyes she sheepishly answered. "My husband thinks I neglect housework to look at TV. Every morning he takes the tube to work with him."



## The Tweeter Bothered the Woofer

"**R**OVER just can't stand our television set," the woman on the phone said. "Every time we turn it on, he moans."

The 21-incher seemed to be working perfectly. But sure enough, the moment I turned it on, the cocker spaniel acted as if he had sat down on a nail. It wasn't the program; I doubt if he cared one way or the other about fashion shows.

Listening at the back of the cabinet, I was just able to hear a very faint whistle. With the set turned off, I plucked out a

certain 6SN7 triode. Triodes have one element more than diodes; it's the control grid, a few turns of very fine wire wound on two support rods and spaced just a hair off the cathode so that the electron stream must pass through the grid to reach the plate.

Being tiny negative charges, electrons are repelled by anything negatively charged (that is, with extra electrons of its own) and attracted by a positive charge. So if the control grid is positively charged, the electron stream will be pulled through. Charged negatively, it blocks electrons as a faucet does water.

In this 6SN7, the set's horizontal oscillator, the grid charge was being switched 15,750 times a second to power the sweep circuit that moved the picture beam across the screen. Although this frequency is barely within the human hearing range, it is well within that of man's best friend.

How was an oscillating electric current making itself audible as *sound* to Rover and myself? The tube was acting as a speaker. This particular 6SN7 had loose elements. Every time the current punched through, it jarred these loose elements—15,750 times a second. They vibrated the tube shell, causing the high whine that pained the spaniel's sensitive ear. Replacing this tweeter let the woofer lead a dog's life in peace.

## The Set That Played Politics

**W**HEN our local pizza palace got a new 21" set, I made a no-cash deal with the owner: one year's service for a large pizza a week, with mushrooms.





During election season I walked in on a family wrangle hotter than any pizza. The boss's wife, who outweighs him by 40 pounds, was hefting one of the big pies as if trying for good aim.

"You tune it that way on purpose," she shrieked. "Just so I won't see my candidate."

"I don't. It's not my fault, and anyway that guy . . ." He mumbled something about a local office seeker. His wife glared, and it seemed the pizza would be flying any moment, so I butted in.

The husband turned to me with relief. "My wife likes one candidate, and I'm for the other one. Can I help it if the TV set won't get the locals right?"

He was telling the truth. All the local channels were so bright that the picture was completely washed out. But distant stations came in fine. Since his wife's party was campaigning heavily on TV, she thought he was pulling a fast one.

The chassis showed nothing but beautifully lit tubes. I brooded over my pizza.

Pentodes are tubes with two more elements than plain triodes. One is the screen grid, much like the control grid but between it and the plate. A strong positive charge on the screen grid has a terrific come-hither effect on the electron stream, giving it a hard shove toward the plate.

In this set a pentode was used for automatic gain control, a circuit that automatically adjusts contrast as the antenna signal varies because of weather, interference or other reasons. Without it, you'd have to readjust picture contrast every other minute. The "brain" of the automatic deal was a 6AU6 that sampled the incoming signal and turned the gain of the other tubes up or down to suit.

But the 6AU6 in this set had a broken screen grid. Although lit, it wasn't controlling the AGC circuit. That let all the other tubes run wide open. Powerful stations drove through so hard as to wash out their pictures. Weak signals produced better-than-usual pictures.

Replacing the tube brought the locals in normally, made the boss smile with relief, and left me free to finish my pizza.



## The One I Didn't Solve

**D**URING a rush week, when I was leaving early every morning and getting home after 11 every night, my own set developed tube trouble. Too tired to check it, I kept putting it off while my wife went around mumbling something about shoemakers' children going barefoot. The set, she complained, turned on all right but after a few minutes the picture darkened and began rippling and weaving like something in a trick penny-arcade mirror.

When you have metal elements separated by a tiny insulating gap, as you do in tubes, you also have a condenser—whether you want it or not. This condenser effect (that of storing an electrical charge) is called stray capacitance. It's small in tubes, but if the spacing of the elements is a gnat's whisker too close, stray capacitance increases. Along with other circuit elements, such boosted capacitance can create an oscillation or electrical frequency all its own—strictly a maverick in the well-trained stable of normal TV impulses.

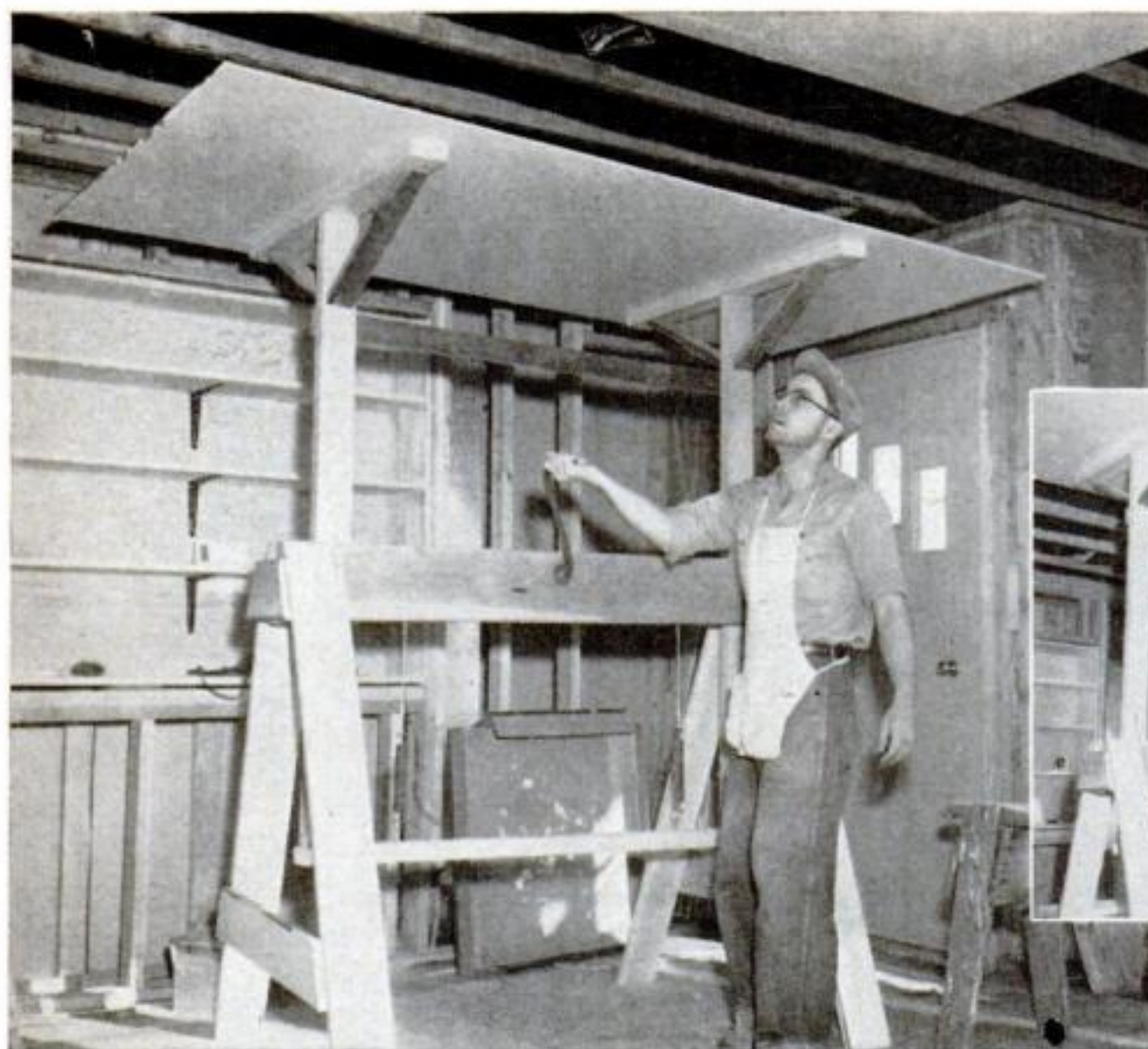
One of the picture-signal amplifiers in my set had developed too much stray capacitance and become a tiny oscillator. Its output was small, but was being amplified along with the video signal, getting bigger from stage to stage until it caused big ripples in the picture.

All it would have taken to straighten out the picture was a new tube. But I never did get around to putting it in.

So how do I know it was needed? My wife got tired of waiting for me. This morning I got a bill from my chief competitor—\$5.65 for servicing and replacing a bad tube in my set.

END





**UP SHE GOES** with a turn of the crank, and an extra set of "hands" holds a ceiling panel while you nail it up. Spring tension in the lift lets you slide a sheet to exact position.



## Elevator Makes Ceiling a One-Man Job

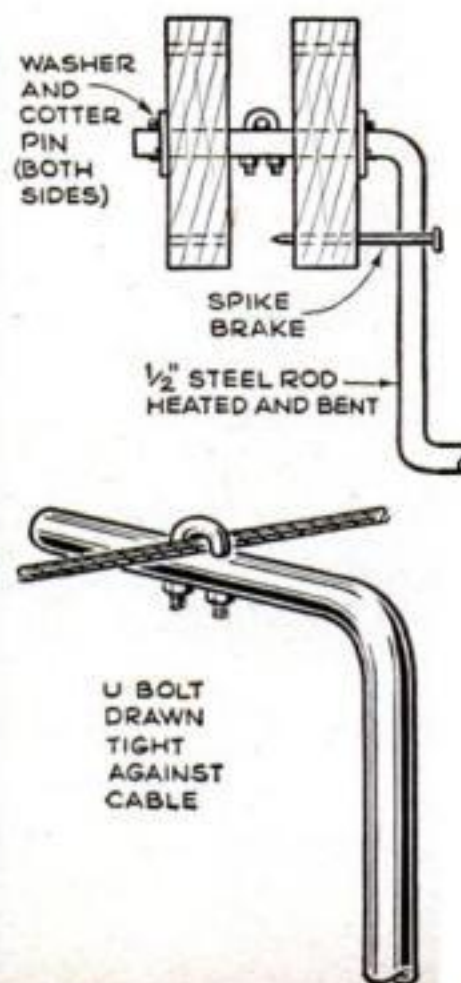
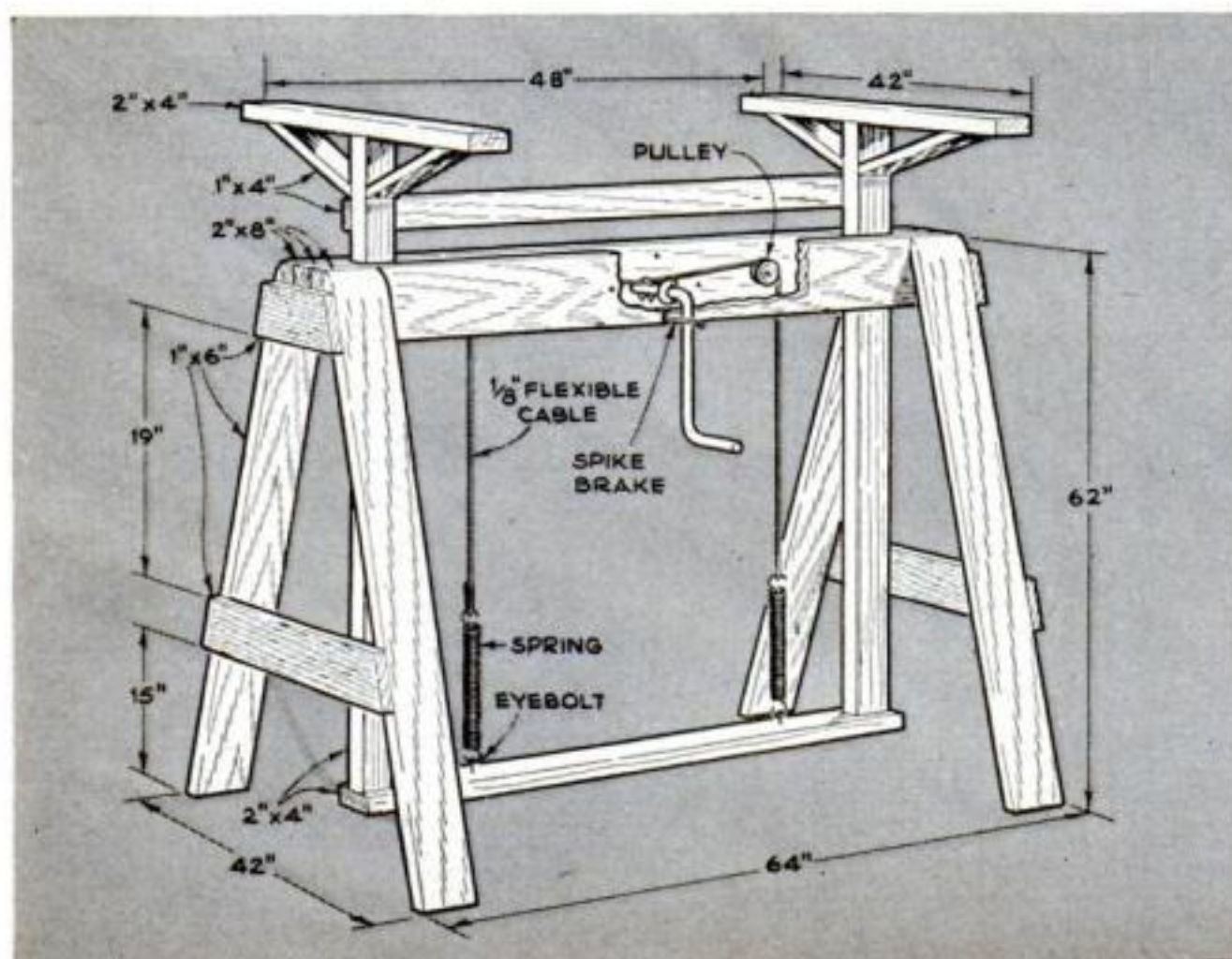
**W**ITH this homemade lift as my only helper, I put up a plasterboard ceiling in jig time. The contraption raises a big panel at the turn of a crank, then holds it snug against the joists as I slide it to exact position and nail it.

The frame is an oversize "sawhorse," its rail made of two two-by-eights spaced to allow the two-by-four uprights of the elevator to move up and down between them. The dimensions shown were adequate for my 7'9" ceiling; for a higher

one, you may have to make the horse somewhat taller.

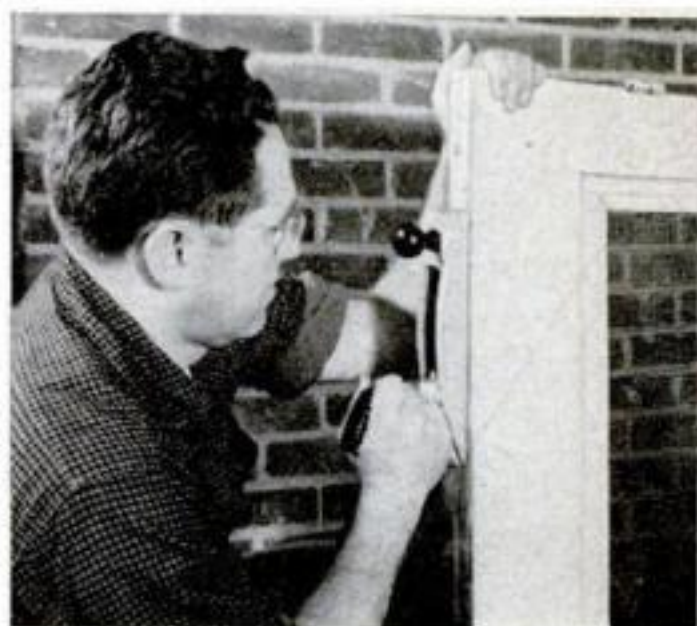
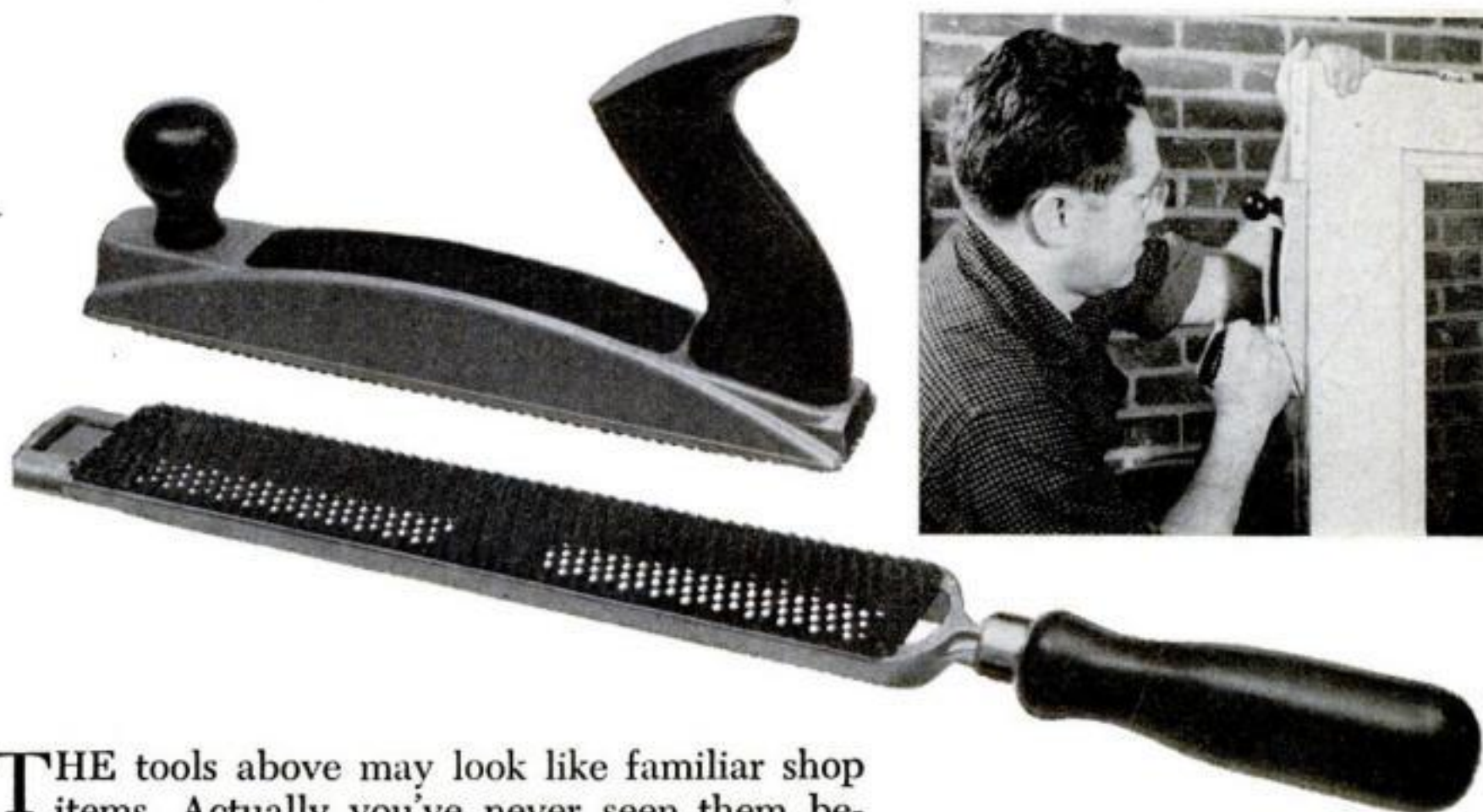
The  $\frac{1}{8}$ " flexible steel cable that hoists the elevator winds up on the shaft of the crank. The cable is anchored by a U bolt through the shaft. Springs between the cable and the bottom crosspiece give to let me slide the board around.

I built the lift in five hours at a cost of about \$10. When the job was done, I took it apart and salvaged the lumber.—*Edward A. Babka, Columbus, Nebr.*





# New Shaping Tool Grates Wood and Metal

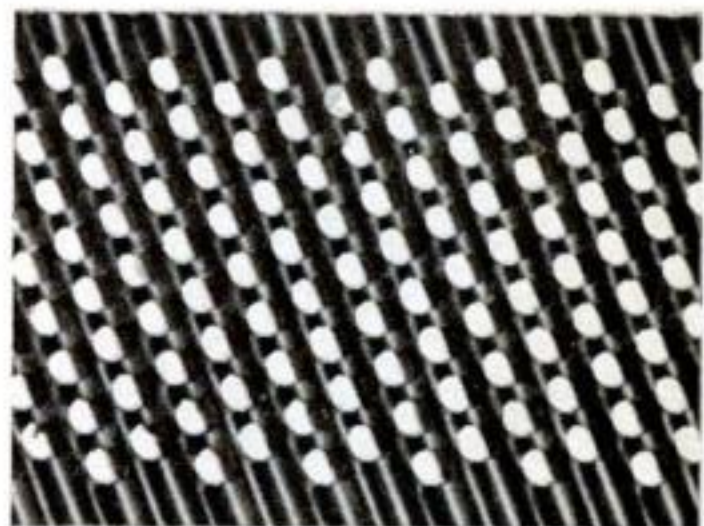


**T**HE tools above may look like familiar shop items. Actually you've never seen them before. What you see is really a brand-new way of shaping wood, plastic, metal—anything you want up to the hardness of mild steel. Each tool uses a single, interchangeable blade that will do most of the jobs of conventional files, rasps, planes, draw knives and spoke shaves.

The blade is a special perforated steel strip. Instead of a single cutting edge, it has hundreds of tiny, sharp knives that skim the surface like a food grater. Because the cutting is done in small bites, you get a smooth, even finish. The blade doesn't tilt, skip, gouge or dig in.

You can plane the bottom of a door without splintering the cross grain at the ends. Soft materials like lead and plastic that quickly clog ordinary shaping tools are easy to work because the shavings pass out the blade's perforations.

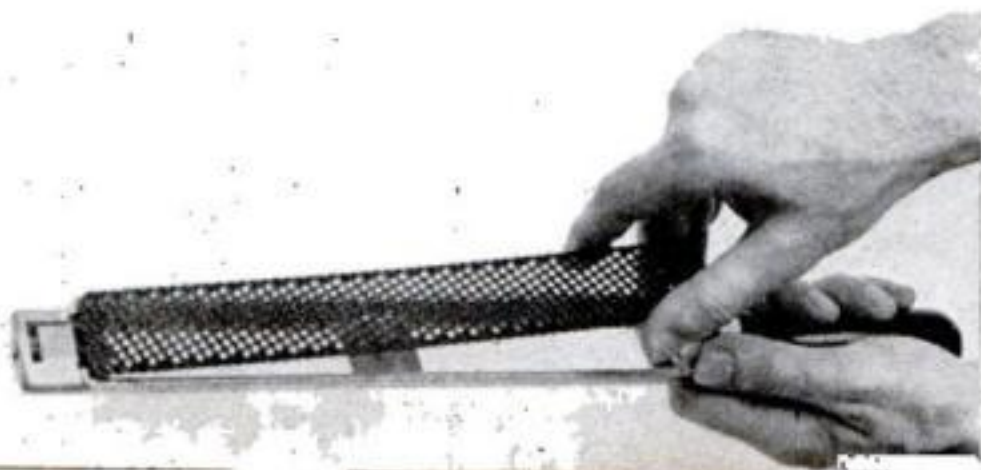
The blade is held in the metal frame of either tool like a jigsaw blade. When one becomes dull, you remove it and insert a new one. The rasp-shaped tool for beveling edges and shaping contours will sell for about \$2.50. The block plane, for about \$3.50, makes smooth, straight cuts. Extra blades cost \$1.50. The Surform tools are made by Stanley Tools, 111 Elm St., New Britain, Conn.



**GRATER-LIKE BLADE**, shown above in actual width, has more than 450 tiny cutters. Diagonal arrangement provides shearing action that prevents splintering, leaves surface smooth.



**TEETH CAN'T DIG IN** because they dip only slightly below surrounding metal, which rides on surface to control depth (above). Chips are thrown out through circular opening ahead of each cutter. Disposable blades lock into tool's frame (left), release quickly for replacement when they become dull. Identical blades fit both the rasp-like tool shown here and the block plane.

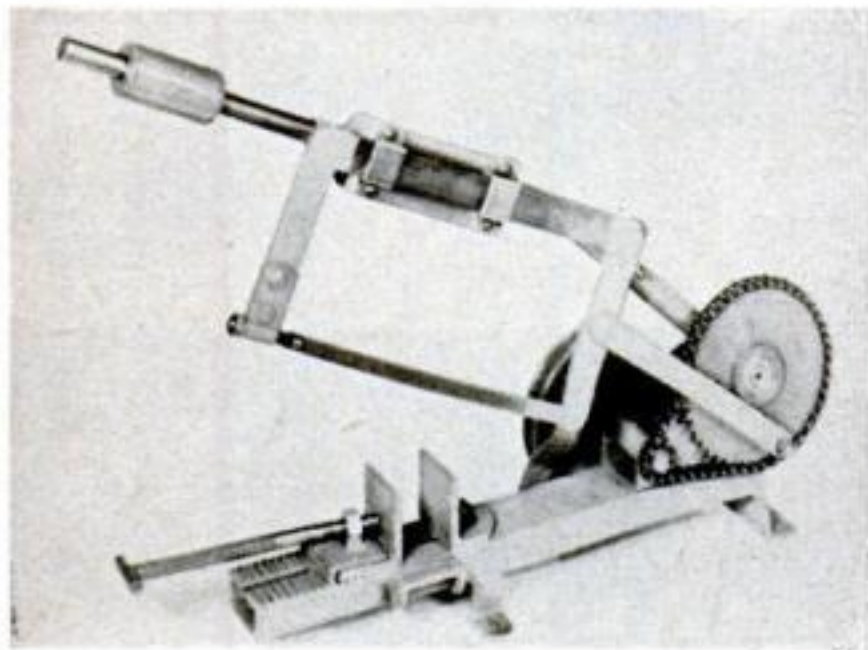
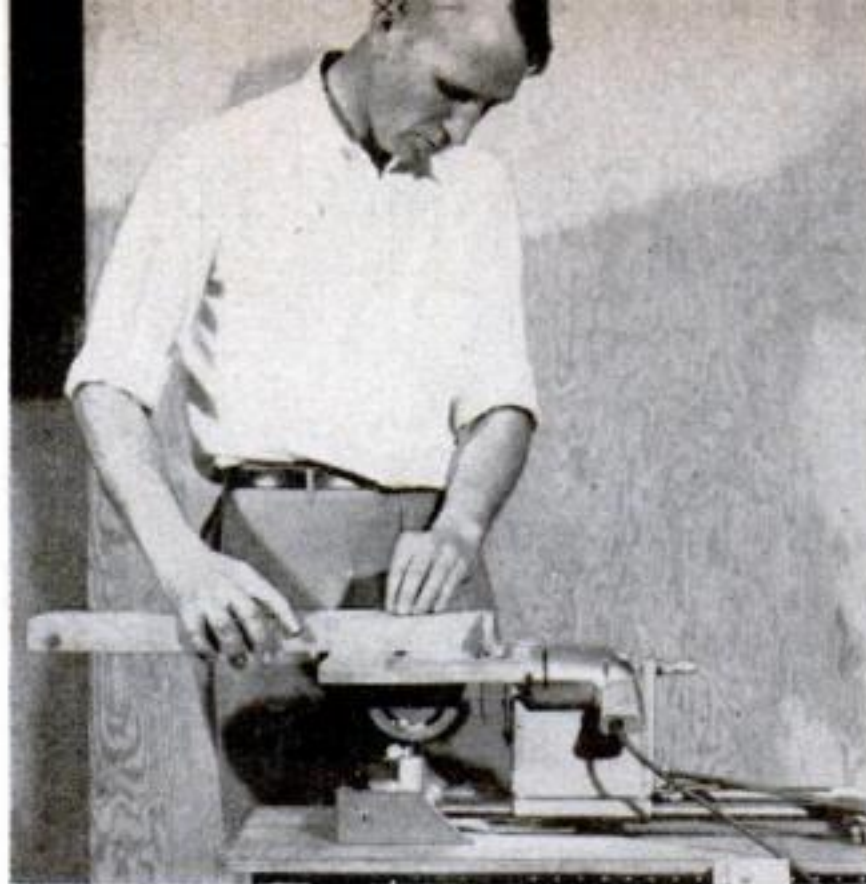




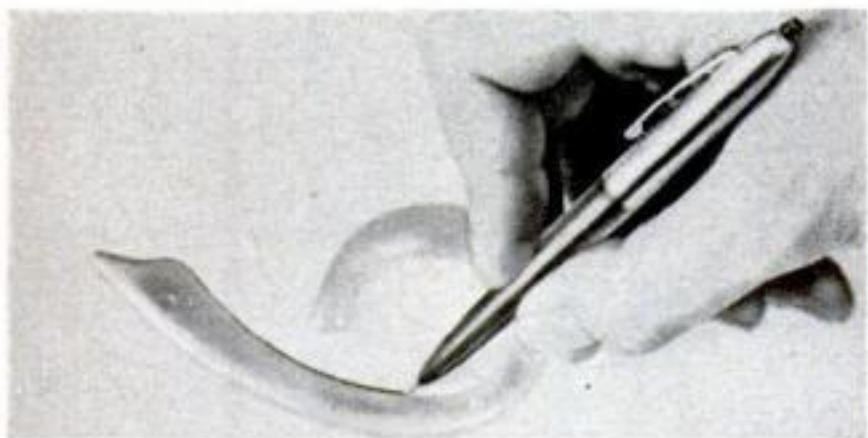
# New Tools

**1. Stand Puts Drill to Many Uses.** A new low-cost, compact drill stand for  $\frac{1}{4}$ " electric drills lets you use the tool horizontally or vertically as a table saw, drill press, disk sander, router, buffer or grinder. Its table tilts to any angle. The 5" saw cuts  $1\frac{1}{4}$ " at 90°, 1" at 45°. The unit folds flat for carrying or storage.

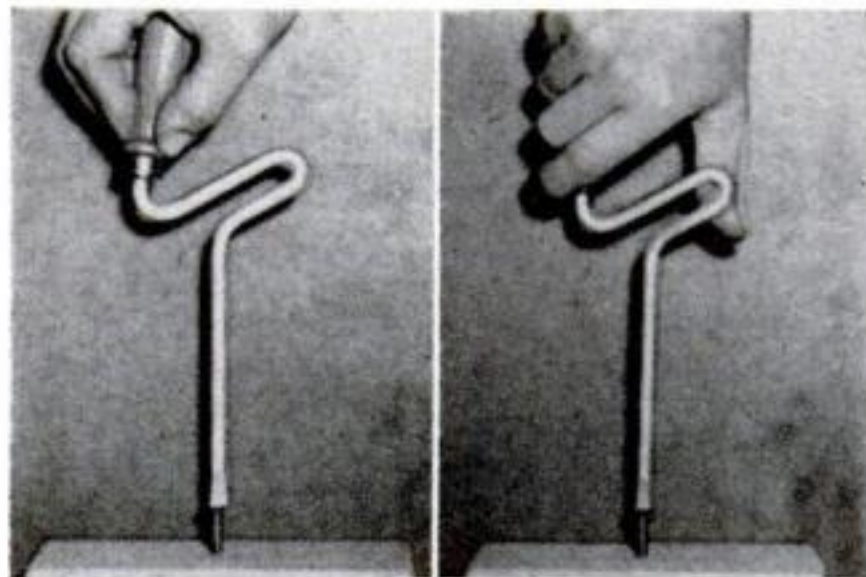
**More information** about the tools shown on this page can be obtained from: 1. Service Machine & Tool Co., 742 Burnet Ave., Syracuse 3; 2. Arco Mfg. Co., 1701 13th Ave. N., Grand Forks, N.D.; 3. Southwest Stores, Box 6231, Tucson, Ariz.; 4. Gunver Mfg. Co., Manchester, Conn.; 5. Firearms International Corp., 6521 Kerby Hill Rd., Washington 22, D.C.



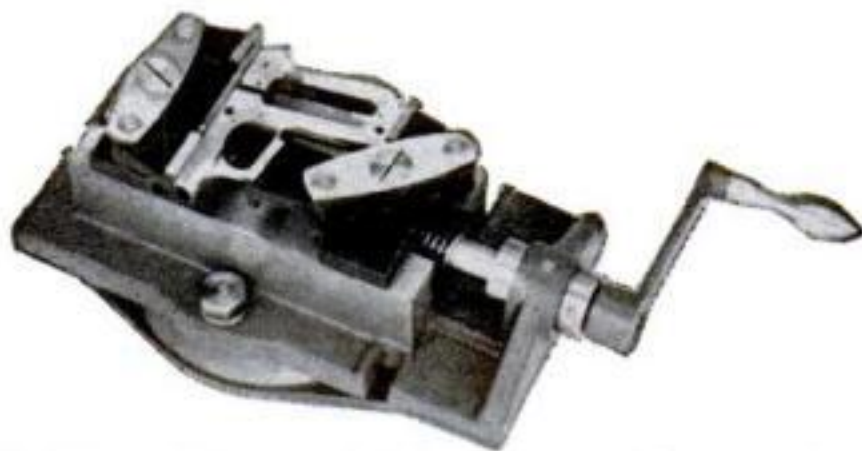
**2. Power Hacksaw Saves Time.** You can mount this unit, together with any chain-drive motor from  $\frac{1}{8}$  hp. up, set the work and go about your other business, sure of a clean straight cut. It uses a standard 10" blade and can handle anything from conduit to 3" steel pipe or  $3\frac{1}{2}$ "-thick steel bars, taking off dime-thin slices.



**4. Scribe Has Retractable Point.** This vest-pocket scribe not only looks like a ball-point pen but it also has the same push-button-type retractable feature. The replaceable point of hardened steel loads like a ball-point refill, too.



**3. Offset Screwdriver Works Fast.** A twist of the wrist while you hold the swivel handle of this screwdriver (above left) makes driving screws easier. For an extra push to send a screw home, you press with your thumb against the U bend (right). Non-slip blades are made for slotted and Phillips heads.



**5. Vise Clamps Odd Shapes.** Two pairs of multi-swivel jaws on this universal clamp squarely contact even irregular work at four points. You can use it as a bench vise or as an outside or inside holding jig on the table or faceplate of many machine tools. One model has locking jaws for duplicate work.





Another Article About  
**The  
 Other  
 Fellow's  
 Shop**

# His Shop Is a Firehouse

***"Name a better place to remodel firearms than in a firehouse," says Carl Daniels, a dairy farmer with a whole herd of hobbies.***

**By William Gilman**

ONE good hobby leads to another. That's the experience of Carl Daniels, a Vermont dairy farmer who runs his own private fire department, hunts deer with rifles that he has remodeled in his gun shop, fishes in three homemade ponds, and spends the rest of his leisure inventing farm machinery.

Carl's hobbies got their chain-reaction start 10 years ago. That was when he bulldozed out the basins for his trout ponds. By the time he was through, he had impounded more than two million gallons of brook water. Looking over the sizable pond that lay nearest



**DANIELS AND HIS NEPHEW** reel out the fire hose to shoot a practice spray on the barn.



to his farm buildings, Carl decided that he had a topnotch source of fire protection. He tracked down a surplus industrial engine pumper—a 500-gallon-a-minute Chrysler job—and bought it for \$500. Carl figured that equipment like that deserved a firehouse. So he built one down beside the pond, a frame-and-clapboard building that was large enough to house not only the pumper but the overflow of power tools that cluttered his old barn workshop.

**Water piped from pond to pumper.** Carl ran a four-inch intake pipe from the pond to his pumper, laying it well below the frost-line to prevent freeze-ups. To get water from the pumper to any one of the buildings on his farm he welded together two dolly-based reels, each of them large enough to take 300 feet of high-pressure fire hose.

There was still one thing Carl needed to make his home fire department complete. That was an automatic alarm system. He took care of that by running 700 feet of special two-wire electric cord along the ceiling of his buildings. If a fire should break out anywhere, a temperature of 165 degrees would melt the insulation, shorting the wires and closing a circuit that would set a big gong clanging in the bedroom stairway of his home.

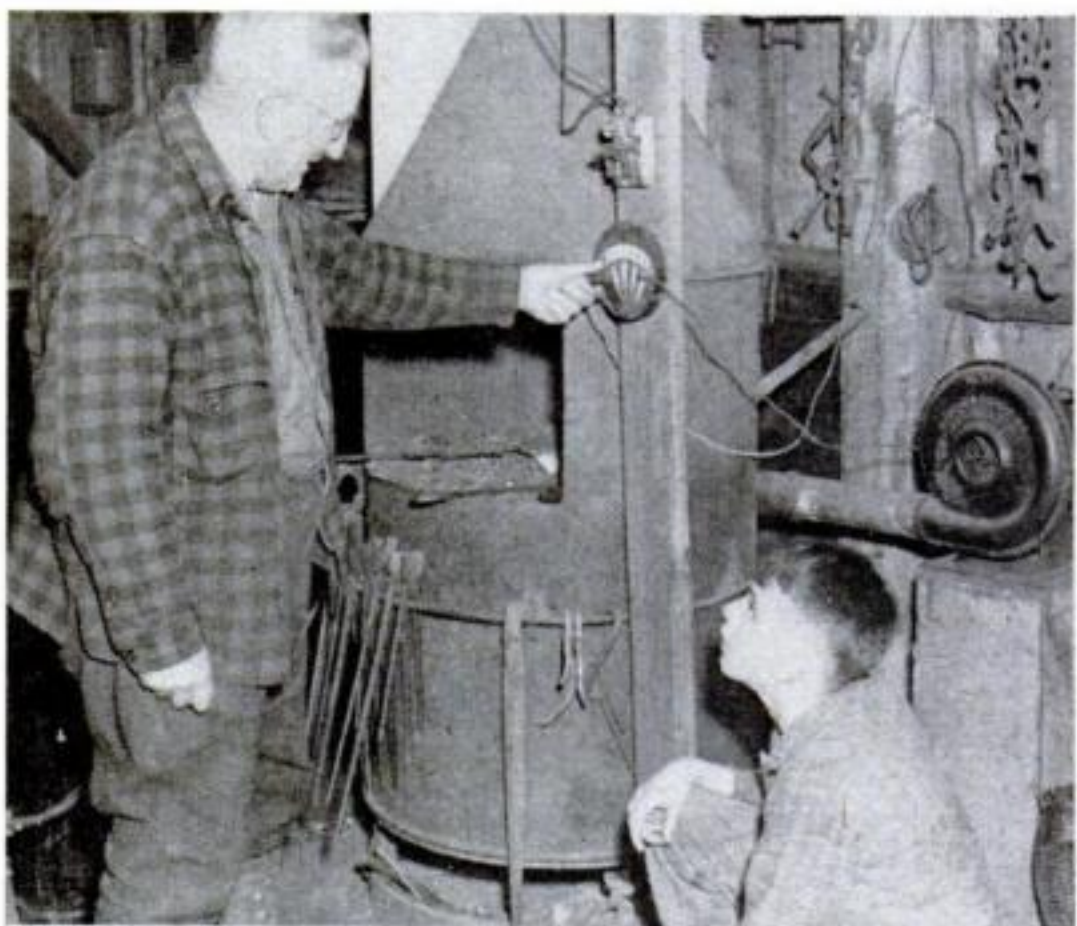
When insurance underwriters saw Carl's fire-fighting setup they were puzzled. They couldn't find anything in their scale of rural rates to cover such complete protection. All they could give him was the standard reduction for a farm with a nearby pond. But that didn't bother Carl. His whole investment, including the combination firehouse and shop had cost him only \$2,000. He figures that his first serious fire call—if he ever has one—would more than repay him for his investment.

Meanwhile, the workshop section of the firehouse has given him a chance to expand his other hobby activities.

**Blacksmith at work.** He still does most of his heavy metal-working jobs in the original barn workshop. There he has his choice of three welding methods: with an oxyacetylene torch, a 180-

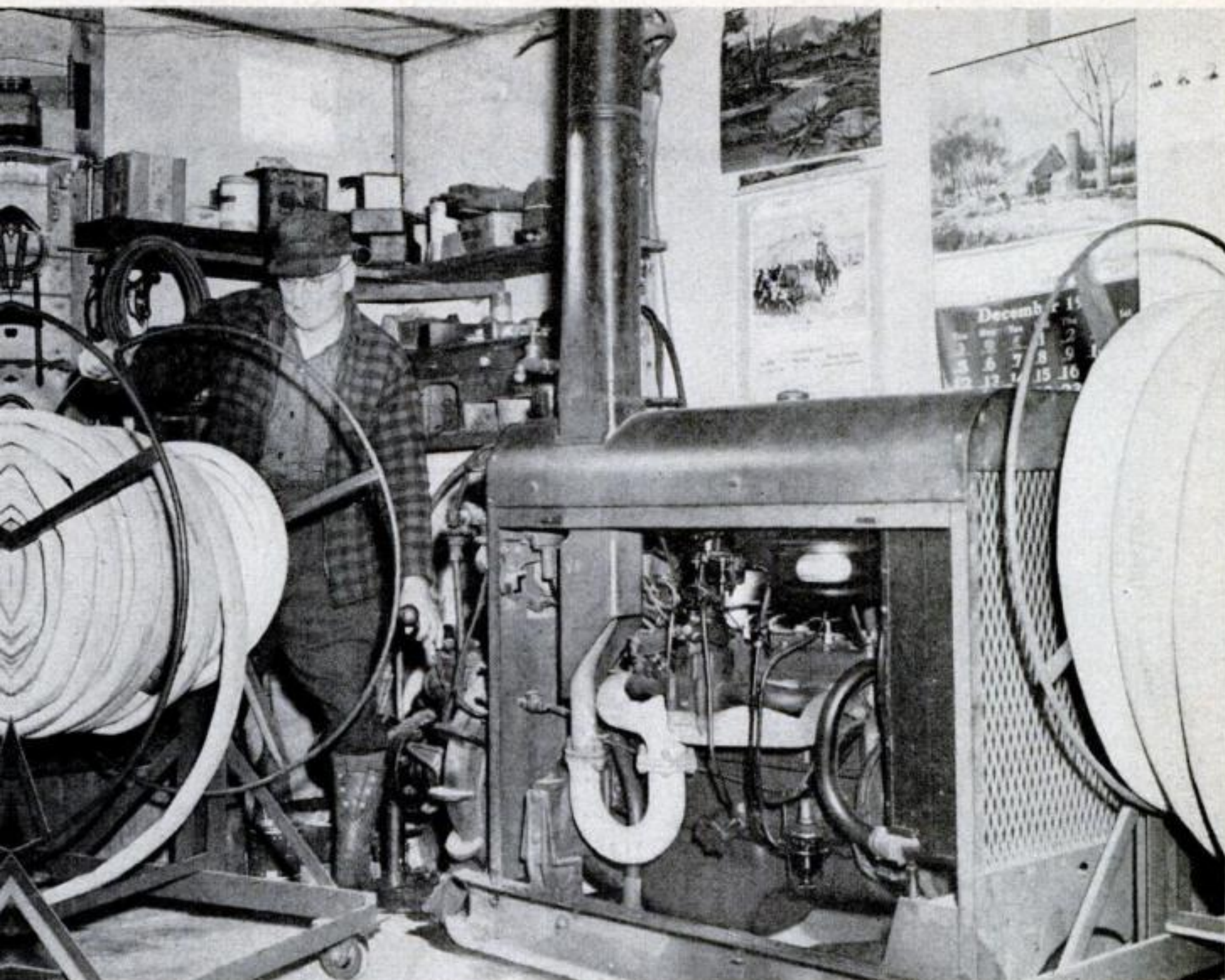


**FARM'S AUTOMATIC FIRE ALARM SYSTEM** isn't dependent on high-line power. Carl Daniels' nephew Glen explains the setup to his mother.



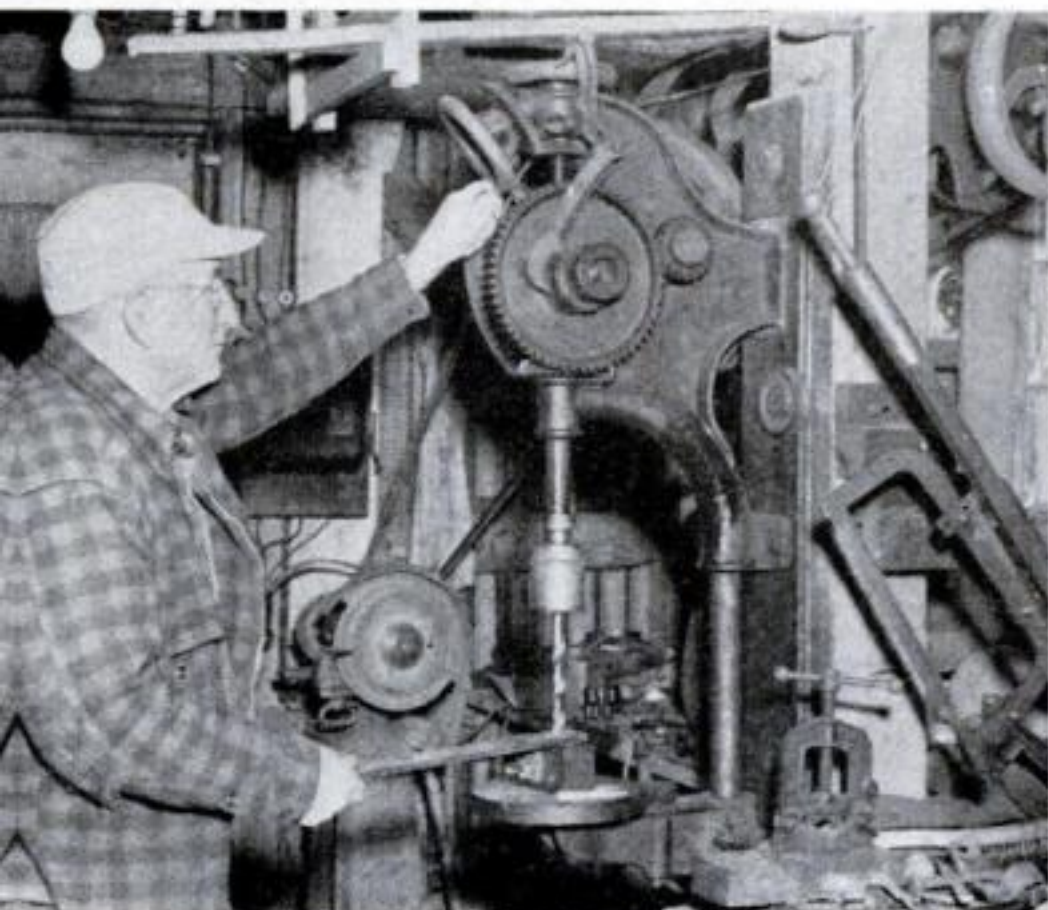
**EVEN CARL'S HOMEMADE BLACKSMITH'S FORGE** is gadgety. Here, he shows his grandnephew Philo how he controls the speed of the blower motor—by rheostat—to regulate the draft.



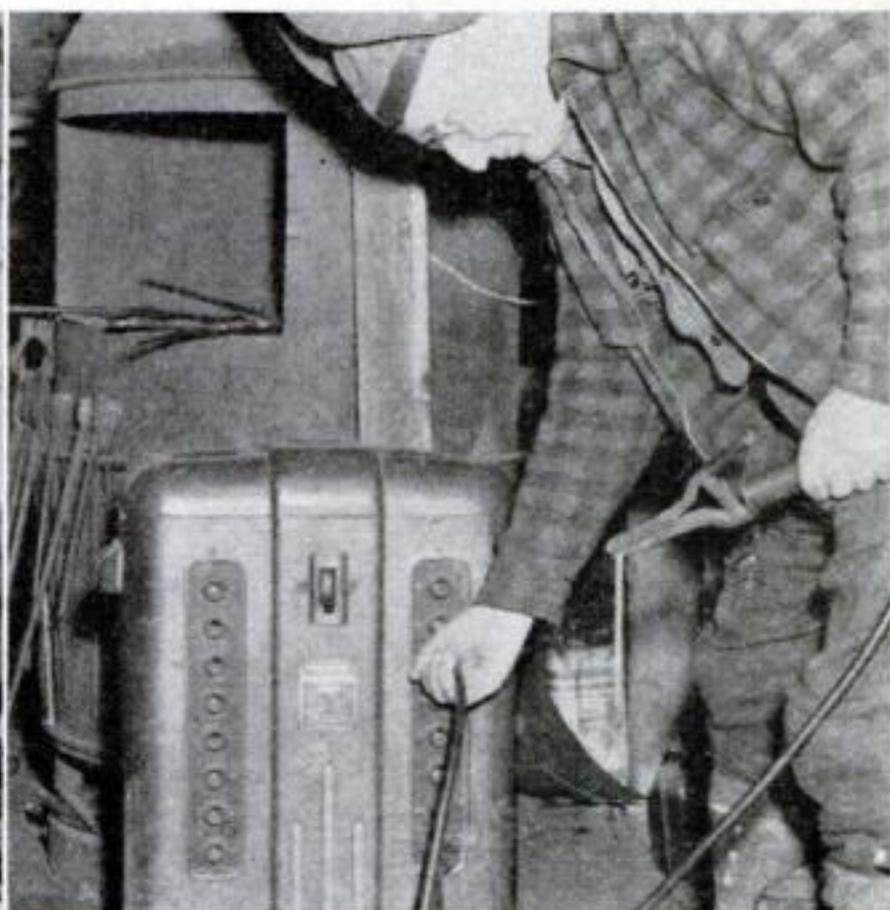


**HEART OF STAY-AT-HOME FIRE DEPARTMENT** is a 500-gallon-per-minute pumper, connected to hose reels that can be trundled to any

building on the farm. It takes less than a minute to open a water-supply valve, kick over the engine and start reeling out the hose.



**PUNY MACHINE TOOLS** have no place in Carl's shop. This post-type drill press shares a two-horsepower motor with a husky grinding arbor and an improvised power hacksaw.

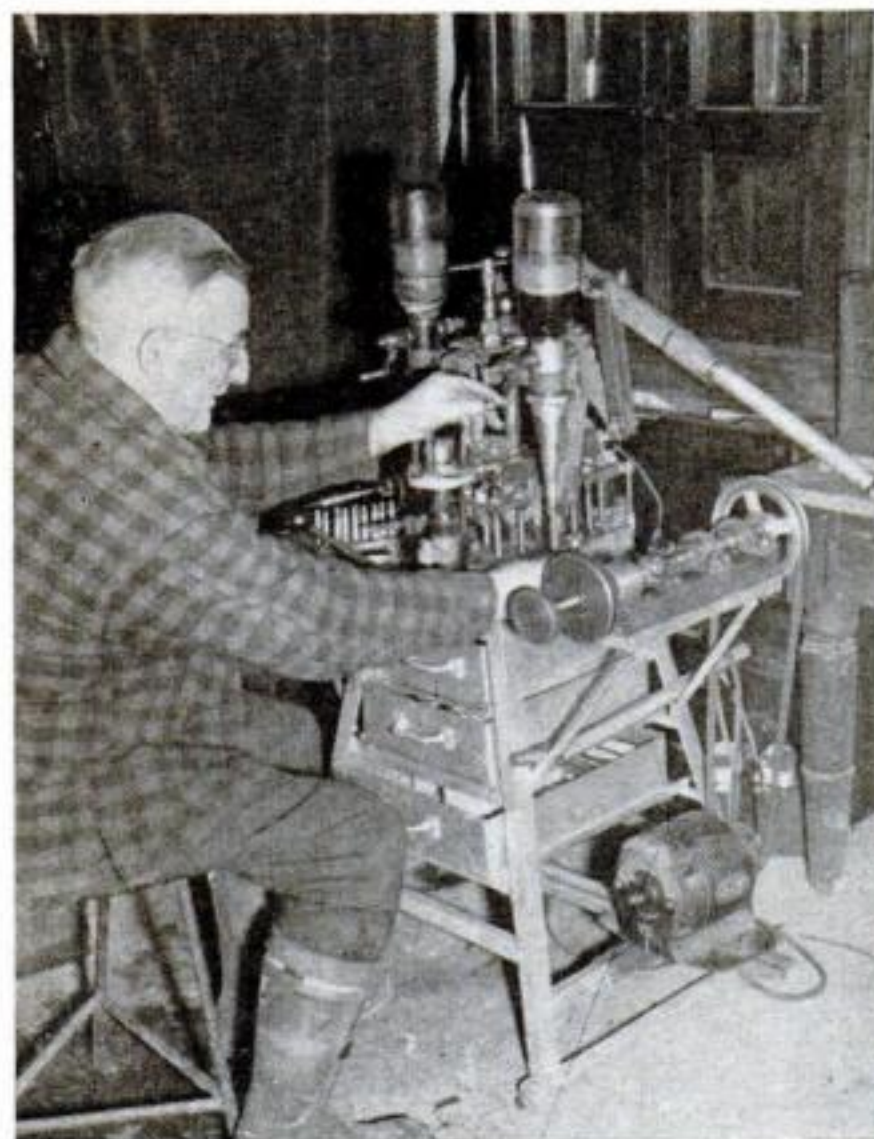


**METAL-BONDING** jobs give Carl his choice of using this electric arc welder, or his oxy-acetylene equipment. For old-fashioned "pressure" welds, he uses his blacksmith's forge.





**FIREHOUSE GUN-CASE** bears out Carl's contention that gunsmithing is his favorite hobby. Here he fondles a Mauser, one of many rifles and shotguns that he has remodeled.



**SHELL-RELOADING STAND**, the most elaborate gadget in the firehouse, is where Carl rebuilds ammo. Cone-like dispensers drop the right amount of powder in each shell.

**CARL SALVAGES BULLETS** fired on his rifle range, melts them down on a gas stove he made from a generator housing, and recasts them. He's sitting on a home-welded stool.

ampere AC electric welder, or his big homemade forge. Now that you can't find a blacksmith for love or money, Carl gets a boot out of his ability to forge-heat two pieces of metal and fuse them together with blows on an anvil. Other tools include a post-type drill press and a homemade power hacksaw.

**Firehouse is handy to barn.** For metal-turning, tool-sharpening, or his gunsmithing hobby, Carl steps across a driveway from his barn to his firehouse. There he has a man-size lathe with a 14" swing and an 8' bed, a second drill press and two grinding stands. One of these stands, specially designed for sharpening mowing machine knives, is typical of his resourcefulness. The telescoping stand that raises or lowers the arbor to a convenient height is a pipe assembly. Two grinding wheels, beveled in opposite directions, let Carl sharpen one side of the knife sections and then the other without reversing the work.

But the real eye-stopper is his bullet-rebuilding stand, a gadget-packed bench where he can melt down old bullets salvaged from his home rifle range, cast new ones, and resize old cartridge cases. There, too, he can reload the shells with just the right amount of powder, then crimp the shells around the bullets.

Perched on a welded stool, genial Carl Daniels looks about the firehouse with just a trace of worry. This second shop is almost as cluttered, now, as his old one was 10 years ago. It begins to look as though he'd have to start building himself a third one. END







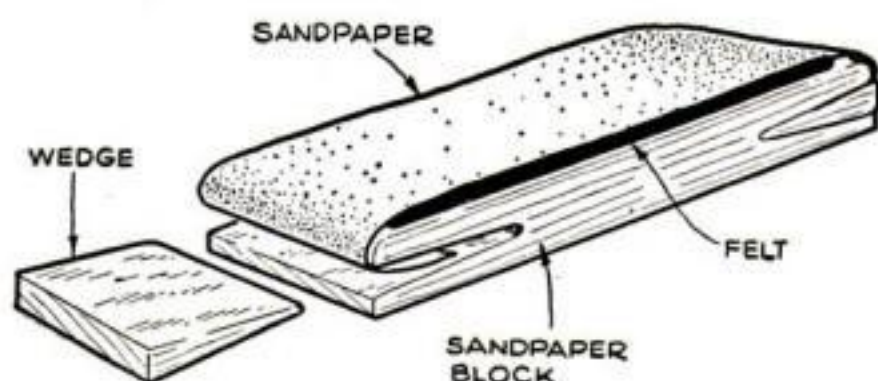
## These Gardeners Ride Their Power Mowers Like Bicycles

IF AN idea is good, it's apt to hit in more than one place. Here is how two readers now ride their power mowers.

Irwin H. Meyer, left, of Yakima, Wash., stripped the rear wheel, sprocket and pedals from a man's bicycle, spread the rear fork and bolted it to the handle brackets of his mower. He removed the

controls from the discarded handle and attached them to the bike frame.

At Weirton, W. Va., Paul Blanc did the same thing with a girl's bicycle, except that he fastened the spread rear fork to pivot brackets which he made and mounted directly over the mower reel. He also added a pedal-height footrest.

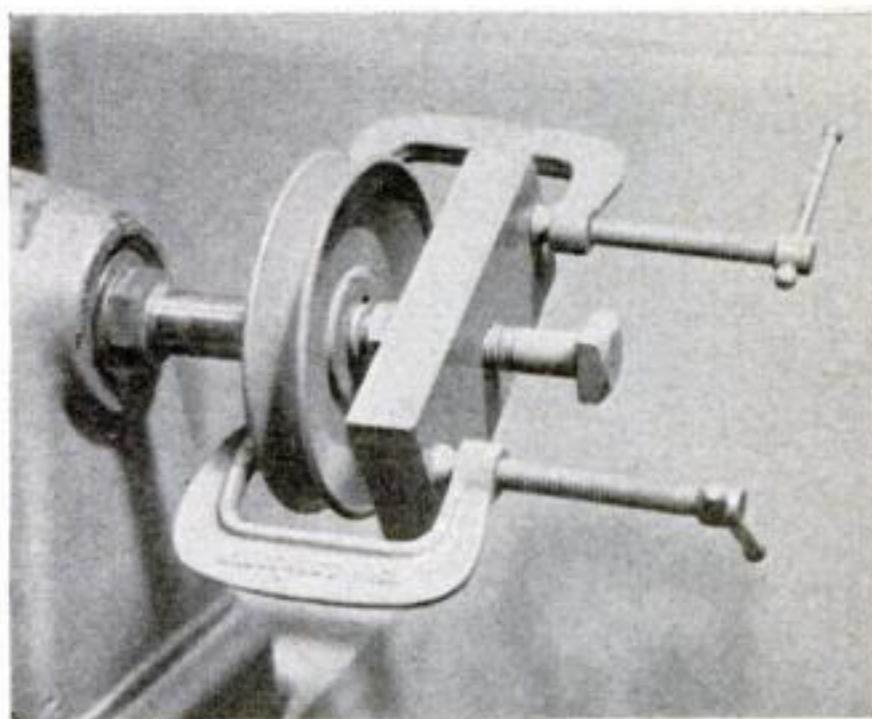


### Tiny Block Sands Small Projects

A 3" length of  $\frac{1}{2}$ "-by-1" stock can be made into a handy sanding block for work on models and other small parts. V-notch the ends for wedges cut slightly long so you can remove them easily. Then glue on felt and wedge in the sandpaper.—P. Casperson, El Cajon, Calif.

### Tape Restores Worn Paintbrush

AN OLD paintbrush that looks like a small boy's cowlick has a lot of life in it yet. Bind the bristles near the ferrule with electrician's plastic tape and you can still use it on rough surfaces.

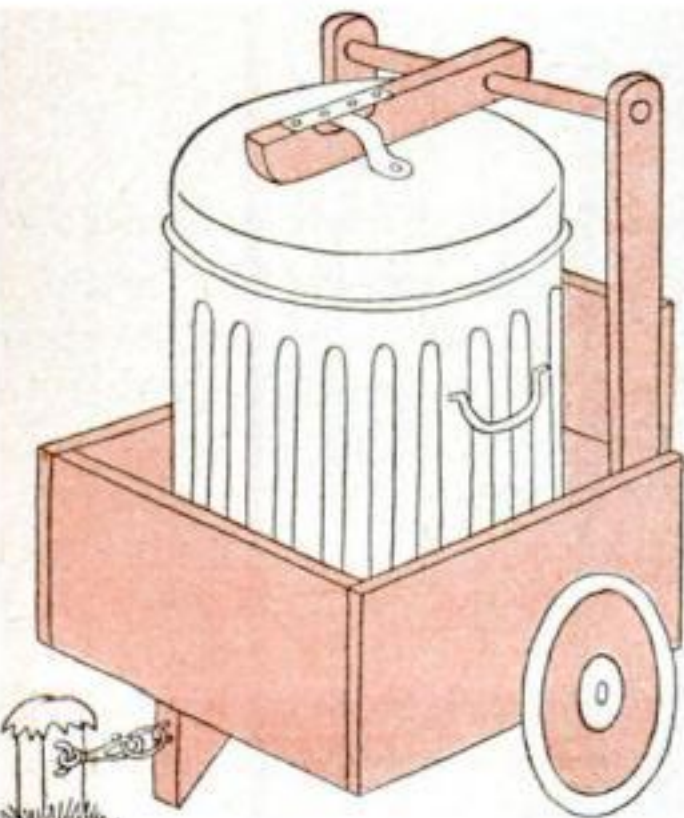
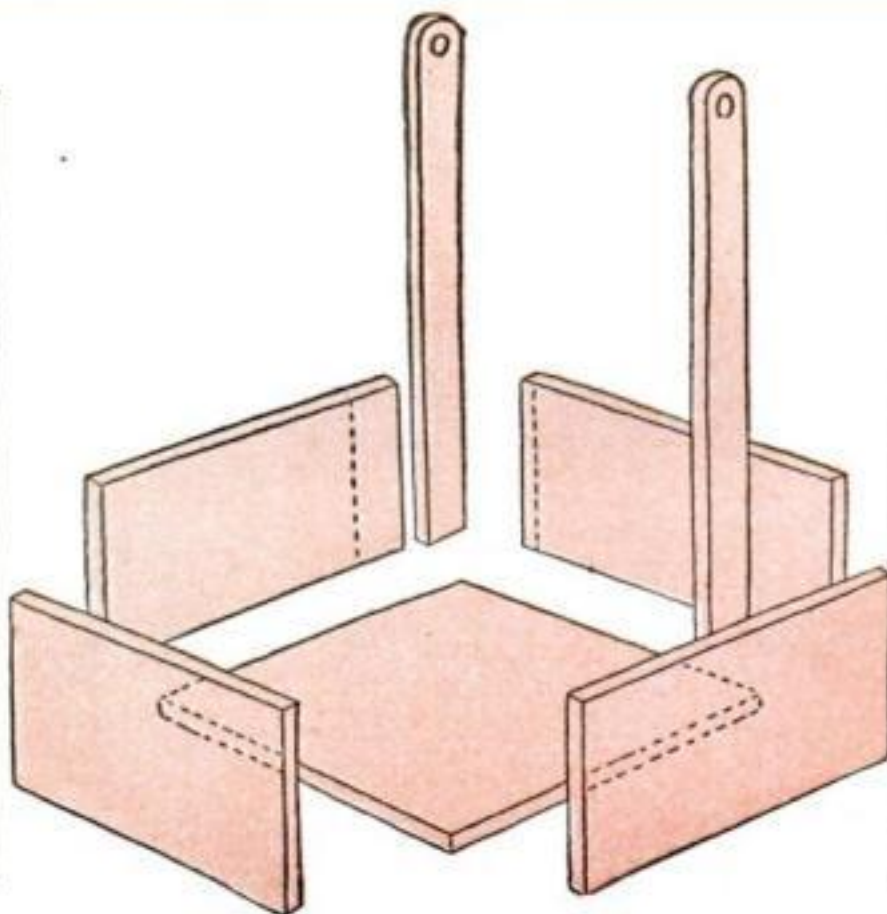


### Block and Clamps Pull Wheel

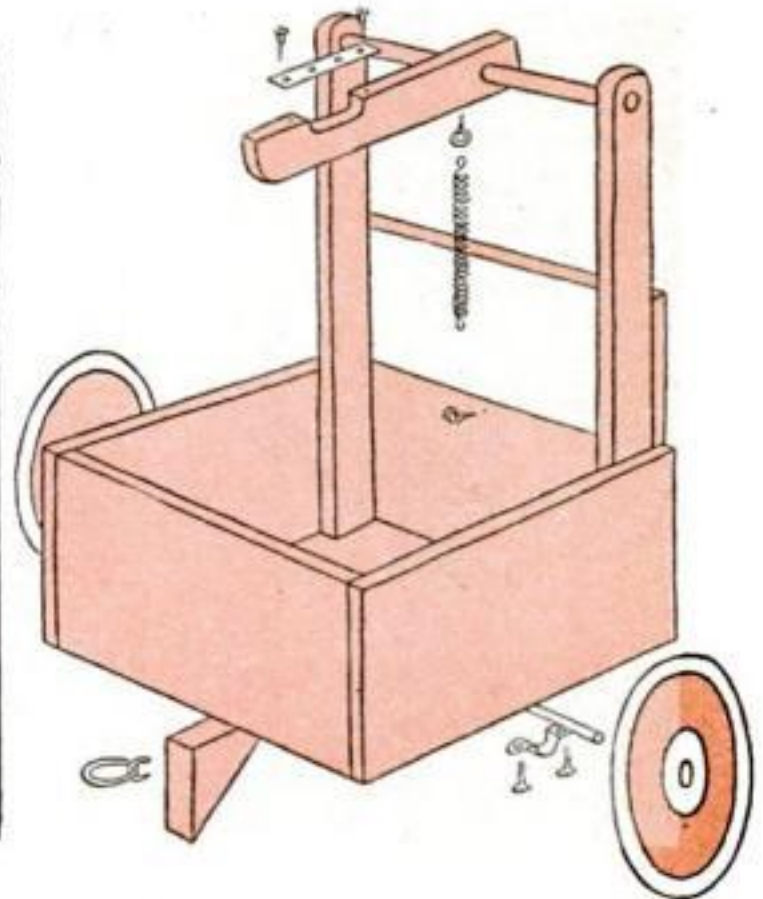
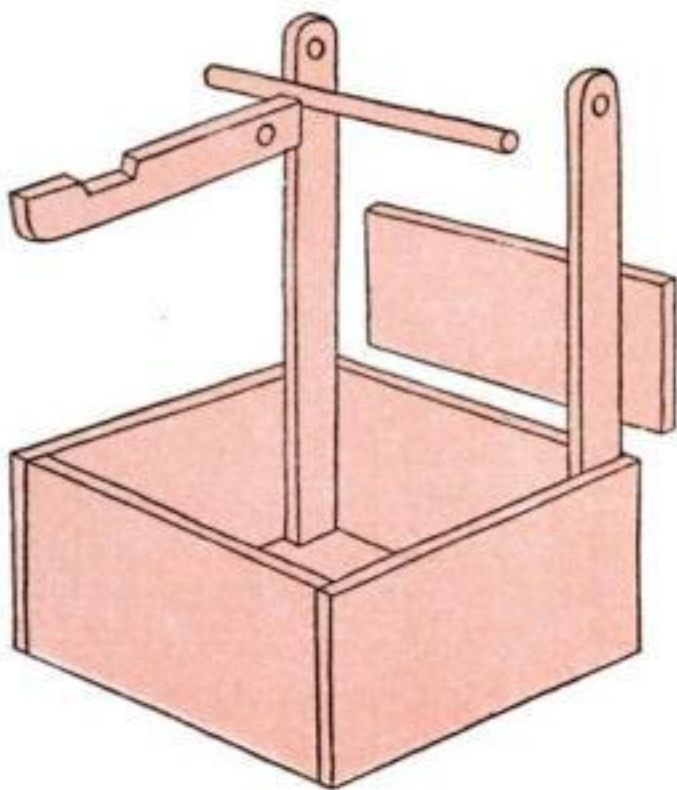
A WHEEL puller improvised from equipment at hand will get a stuck pulley or wheel off its shaft without effort. Cut a wood block to the diameter of the wheel and drill the center so a bolt with a nut will slide in it easily. Clamp to the wheel with the bolt on the shaft. As you hold the nut with one wrench and tighten on the bolt head with another, the wheel will be withdrawn slowly and evenly.—Carleton A. Phillips, Corning, N. Y.



# Wordless Workshop









# How to Build a Transistor

**Who's ringing the doorbell? No need to stop everything to find**



**By Howard G. McEntee**

**W**HEN the doorbell rings, you can answer it on this two-way phone from the kitchen, basement workshop, or upstairs study. A few words to the caller who wants somebody not in the house, the stranger at the wrong address, or a salesman, may save a trip to the door.

So simple that anyone can build it, this transistor device has other uses, too. It can be installed for communication with a basement, detached garage or attic apartment. Located in the nursery, it can tell mother if the children are chattering instead of falling asleep, or reassure little ones afraid of the dark.

**Transistors are a natural** for such a device, which should start instantly but draw no current when not working. This circuit takes so little even when it is working that the four pen-size cells used

should be good for over a hundred hours of continuous operation. In ordinary intercom use, they should last a year. For baby sitting or other fairly continuous service, simply use larger cells.

One master station houses the power supply, amplifier, control switch and master speaker. The remote unit is simply another loudspeaker. Both speakers double very effectively as microphones.

Hearing the doorbell, the householder need only switch to "talk" to communicate with the caller, and to "listen" to hear him. In other applications, one can call from the master station by speaking. To be able to originate calls from a remote station not near the doorbell, run a third wire as shown in dotted lines in the wiring diagram, install a bell or buzzer and use size D cells.

The master station can be housed in a cigar box, with the dry cells and amplifier on a plywood chassis mounted on the box lid. Parts can be obtained singly or as a kit, the latter costing about \$12.\*

**Layout of the parts** is not critical, but mount the transformers at right angles to each other to minimize magnetic pickup. Two four-lug strips serve as tie points and transistor mounts. Cut the transistor leads about an inch long and then solder them directly to the lugs.

The control switch is a four-section, three-position type with spring return to center (off) position. If you want it to stay in any position, get one without the spring return.

One of the four sections is used only as tie points for condenser C1. The other three are treated as individual switches. Make connections as in the drawing.

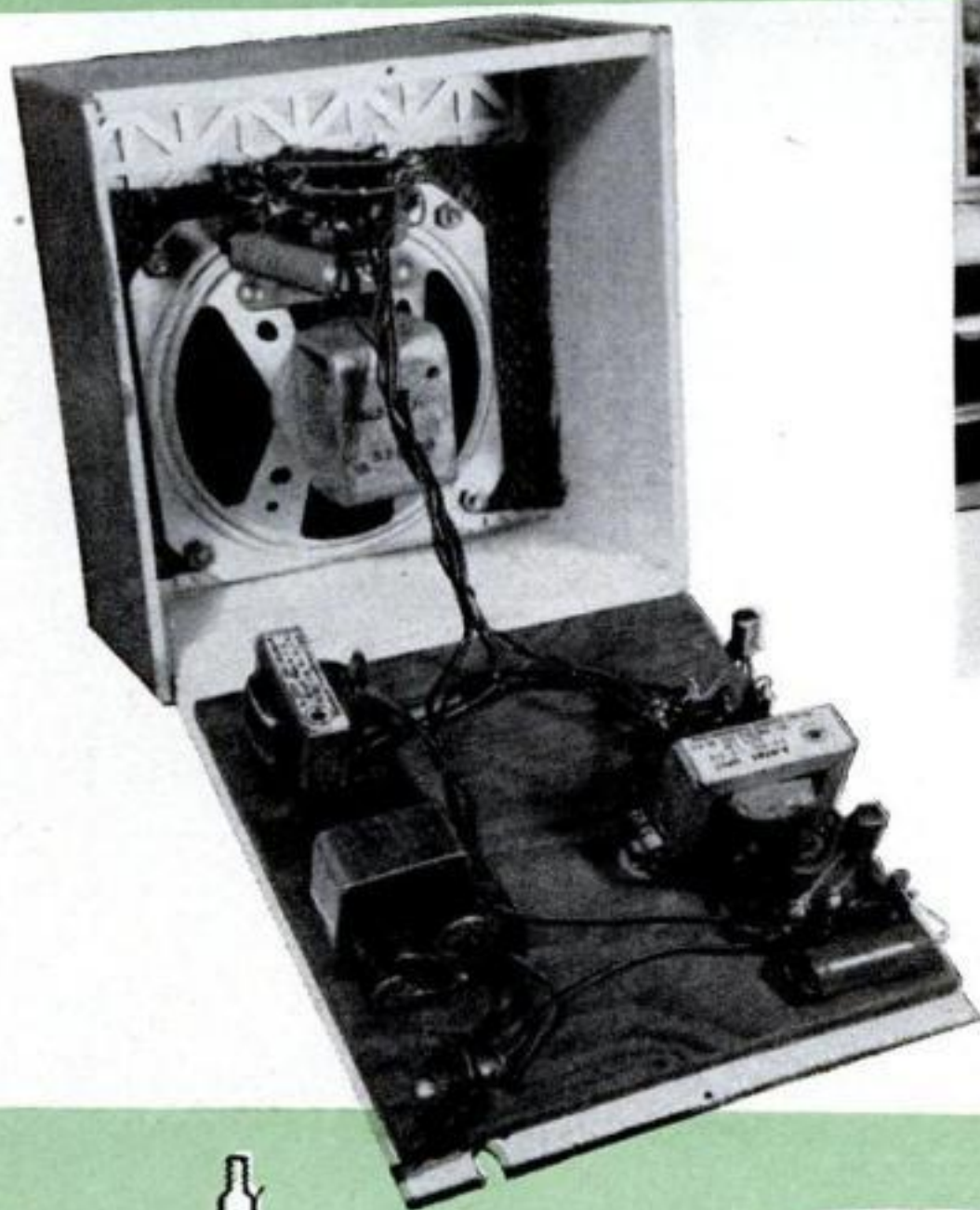
The switch is mounted on the case by its own bracket. Leaving room for the

\*Federated Purchaser, 1021 U.S. Route 22, Mountainside, N.J.

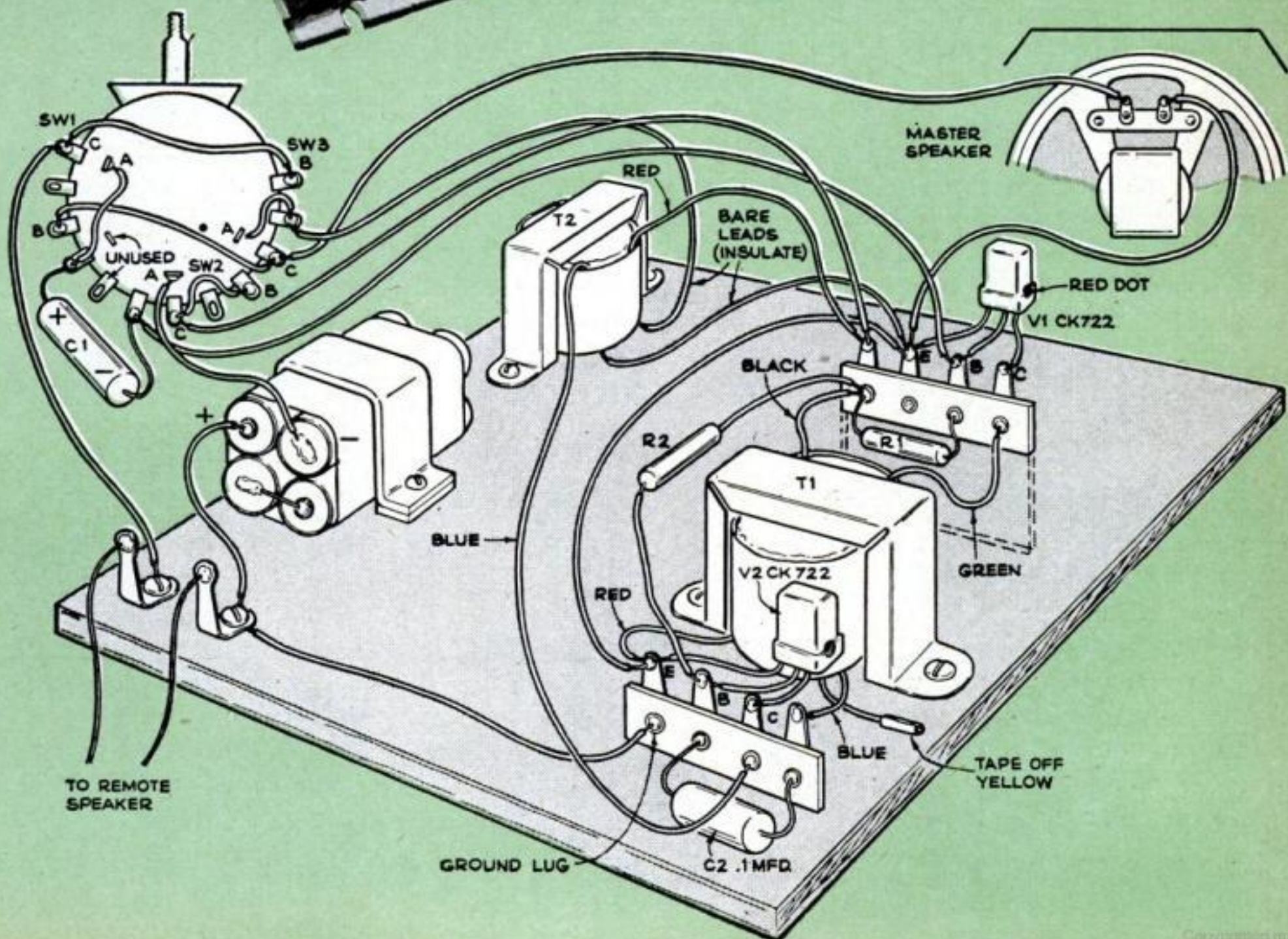


# Door Phone

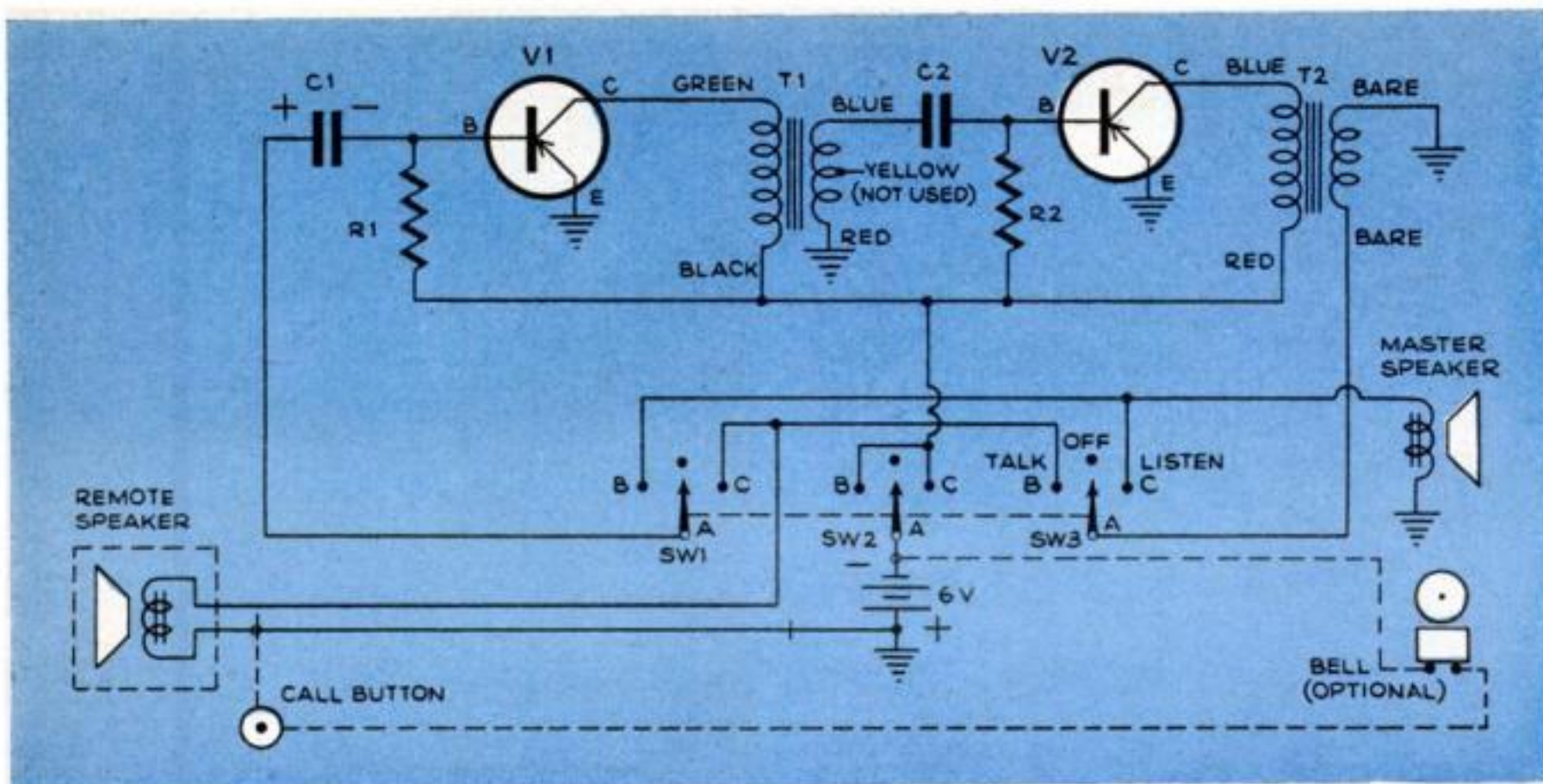
*out. Just press a switch and ask.*



**A FLICK OF A FINGER** turns the unit on to "talk" or "listen." The entire master station fits into a 6"-square cigar box, shown at left turned upside down from its position in use. Chassis is assembled with lid swung down. Cut  $3\frac{1}{2}$ " hole in bottom of box (which becomes front). Bolt the speaker behind this, with metal grille and cloth between.







loudspeaker above, drill two holes and cut a slot for the switch arm between them. Use long, flexible hookup wires between the switch and chassis.

**Long battery life** makes it practical to solder the four cells right into the circuit. Tape them together and clamp them on the chassis with a simple bracket. Solder wires on quickly with a hot iron to minimize heat transfer to the insides.

With the master unit wired, a soft hiss should be heard when the switch is on "listen" but the remote speaker is not connected. With the second speaker hooked up and near the first, the outfit will howl in either switch position. This will cease when stations are separated.

**Check out the amplifier**, if you have a milliammeter, for best gain and lowest current draw. The transistors may vary somewhat, but each should take from .75 to 1.25 ma. If either draws much more, try a higher value for R1 and R2.

Press the remote speaker into a coffee

**CUT SPEAKER HOLE** 3½" in diameter in bottom of a coffee can. Fit metal grille inside. To it, cement grille cloth and a ring of corrugated cardboard cut to suit speaker rim. Speaker shown is a press fit in can, requiring no bolts

#### PARTS LIST

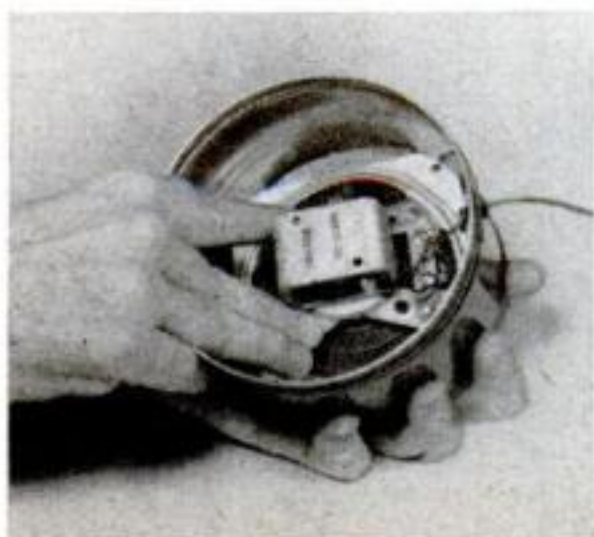
T1: Input transformer (Stancor A-4705)  
T2: Output transformer (Stancor A-3329)  
V1, V2: Raytheon CK722 transistors  
C1: Midget 5 mfd., 6 volt electrolytic condenser  
C2: .1 mfd. paper condenser  
R1, R2: 100,000 ohm, ½-watt carbon resistors

SW: Mallory 7243C, 4-section, 3-position lever switch with spring return.  
Speakers: Two 4" PM speakers, 3.2 ohm voice coils.  
Misc: two 4-lug strips, one 2-lug strip or two single lugs, four pen-size flashlight cells, 6-32 mounting bolts, wood screws, two-conductor wire between stations, hookup wire, etc.

can as shown in the photos. Mount it near the bell button so that a caller will readily hear it and talk into it. A speaker may startle some visitors. You might post a note about it near the doorbell.

In exposed locations the unit should be mounted grille downward, or else with a simple plywood hood over it as shown on page 220. Carry the connecting wires around trim outdoors, along baseboards or picture molding indoors, to keep them inconspicuous. **END**

to hold it. Mount the coffee-can lid on house wall with wood screws (center photo). Then press the can with speaker inside onto the lid. Secure with a tight wrapping of plastic electrical insulating tape as at right below.





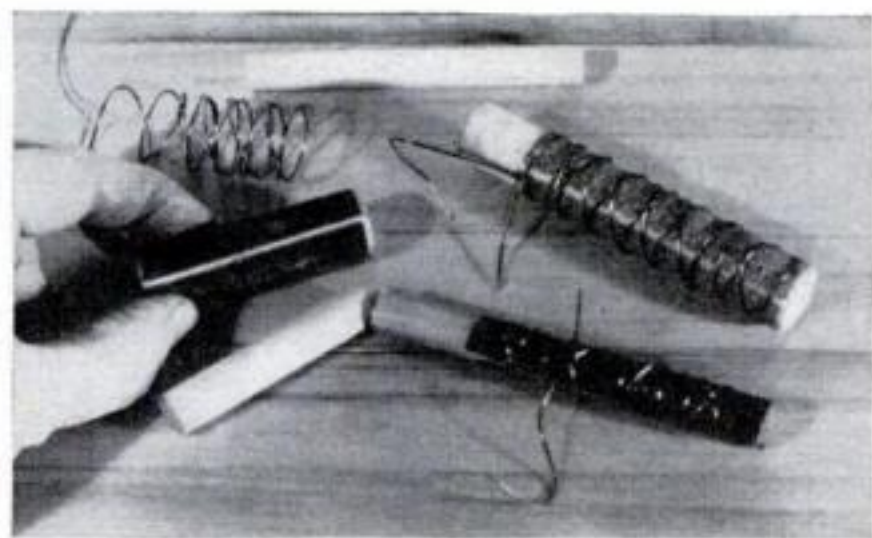
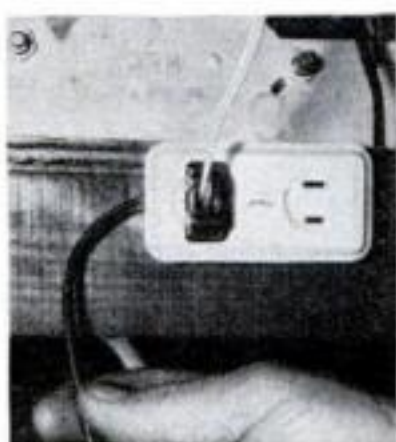


### Dividers Improve Storage Box

IF YOU use cigar boxes for storage, add compartments to some to keep small parts separated. To make the tiny bins, cut down mailing tubes or the cardboard cores in rolls of wax paper. Line the bottom of the box with blotting paper, then put mucilage on the bottoms of the tube sections and press them down.

### Outlet Fixed to Back of TV Set

A WALL outlet screwed to your TV set will provide handy receptacles for a lamp and an electric clock. Attach it to the back of the cabinet and run your power line through it. It's much neater looking than a three-way outlet from the baseboard.



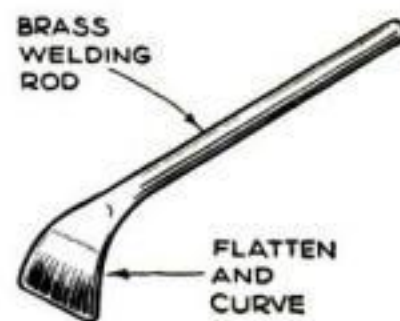
### Dowel End Makes Sanding Stick

SHORT ends of wooden doweling are handy for sanding. Glue emery or garnet paper around them and clamp with wire until the glue sets. Make an assortment of sanding sticks that you can use, hand held or in a drill, for smoothing round corners on metal or wood.



### "Toothpick" Cleans Files

STUBBORN chips that can't be removed with a file card can be picked out readily with this tool. It is made from a short length of brass welding rod. Flatten one end and bend it to a curve, as in the drawing. Use brass, which is soft and won't dull file teeth. *Karl Mickelson, North Chicago.*



### Small Tubing Bent on a Pulley

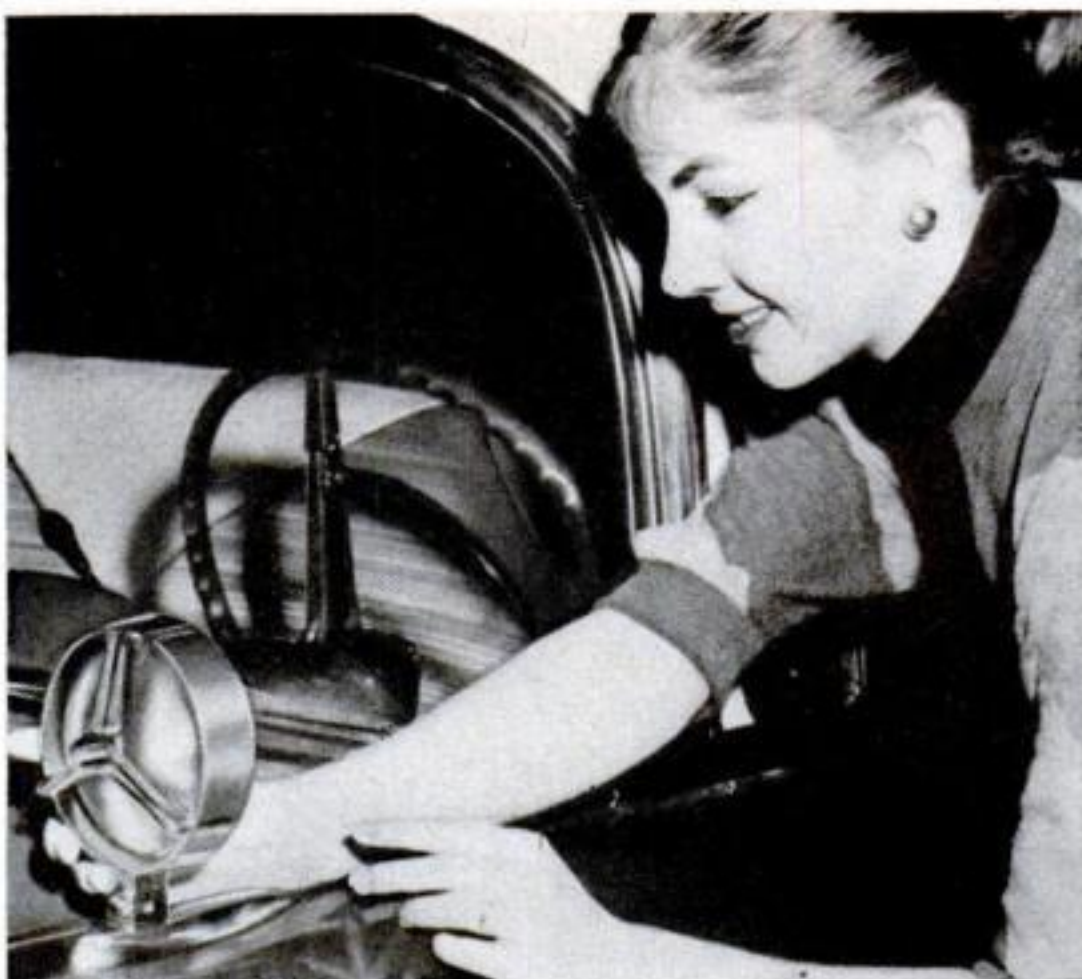


SMALL tubing can be bent without splitting or kinking if a pulley wheel is clamped in the vise to serve as a jig. If you want to make very sharp bends, it's best to start with a large wheel, then work down through smaller ones until you get the tubing bent to the desired radius.



# New for Your Car

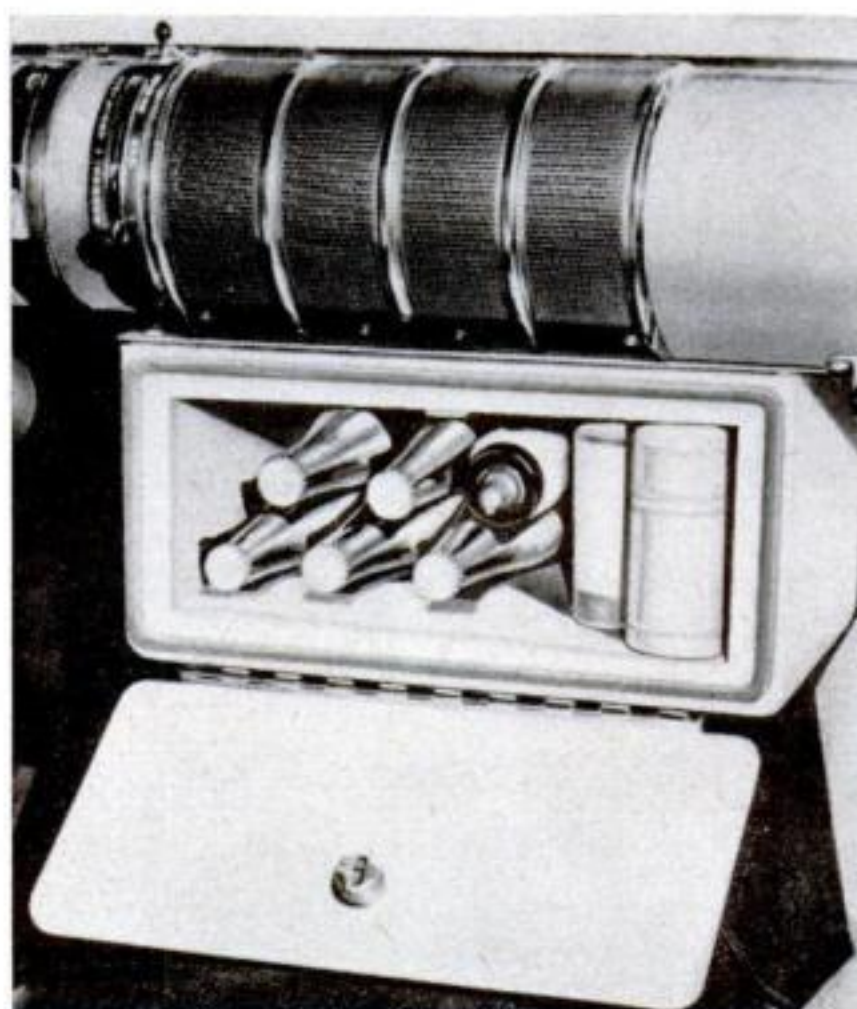
**1. Mirror Matches Body.** You can now get an outside rear-view mirror finished in a color to go with your car, or with only a primer coat so you can paint it yourself. For extra swank, it is available (in limited production) plated with 24-carat gold. The mirror can be adjusted to fit the fender or body of any make car, including models with wrap-around windshields.



**2. Lash Secures Oversize Load.** This 8½' length of resilient neoprene cord, equipped with clamps, will anchor a load in the trunk when you can't close the lid. Two sliding hooks fit into the holes inside the lid rim, and the clamps are adjusted to hold on the bumper.



**3. Air Mattress Fits Station Wagon.** You can turn a Studebaker station wagon into sleeping quarters on a camping trip with specially designed air mattresses that spread on the cargo-area floor. Two side by side will cover the entire space.



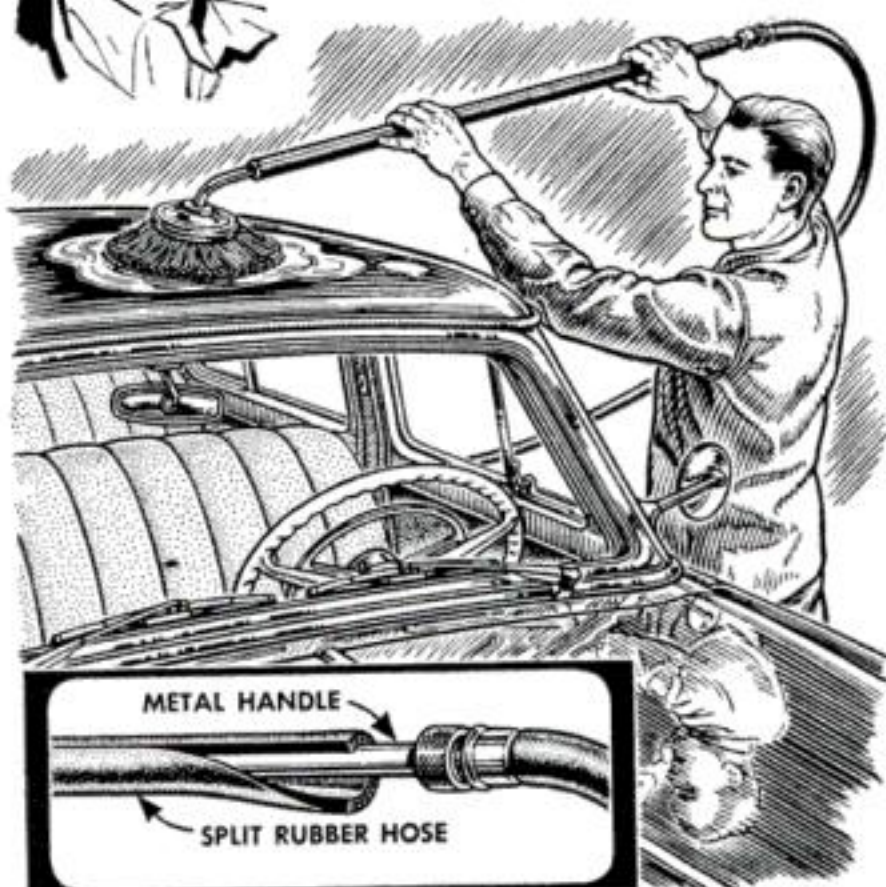
**4. Gasoline Cools Drinks.** A new under-dash refrigerator makes use of the principle that causes carburetor icing. Gasoline drawn from the fuel line by manifold vacuum passes through a coil of small copper tubing. Vaporized, the gasoline takes up heat, cooling the refrigerator and contents. The vapor then enters the intake manifold at the base of the carburetor and is burned.

More information about these new car products can be obtained from: 1. Yankee Metal Products, Norwalk, Conn.; 2. G. G. Sales & Mfg. Co., 5058 W. Wolfram St., Chicago 41; 3. Studebaker Division, South Bend, Ind.; 4. B. & M. Corporation, P.O. Box 6, Houma, La

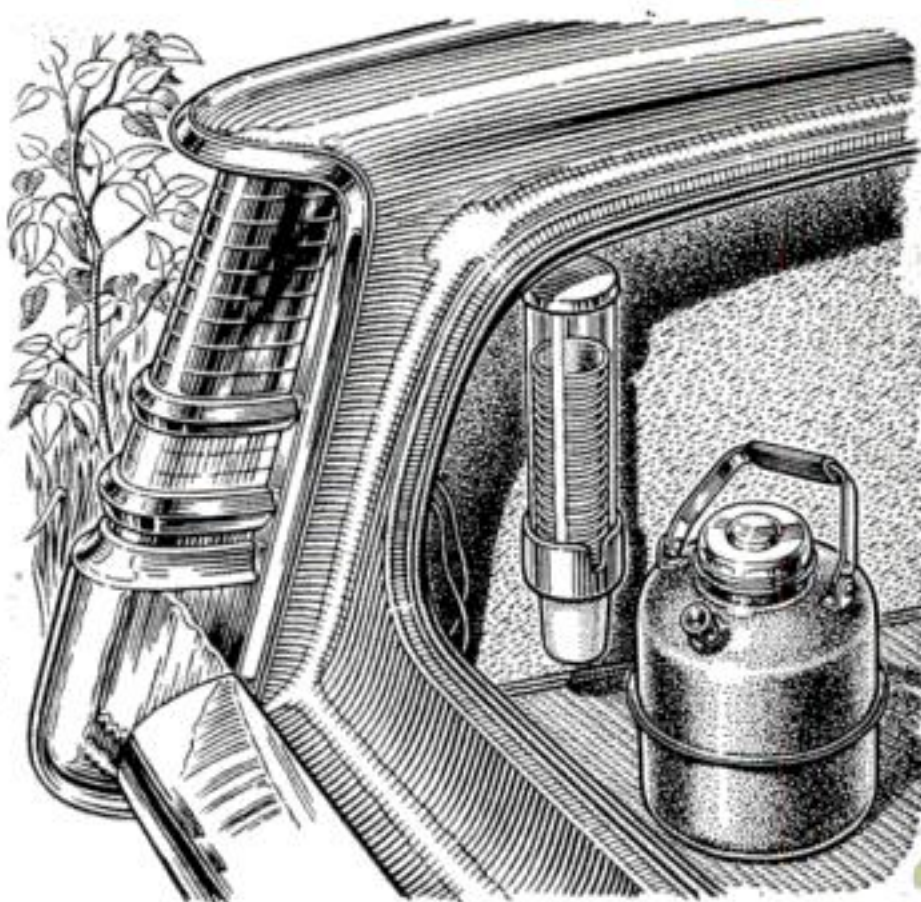




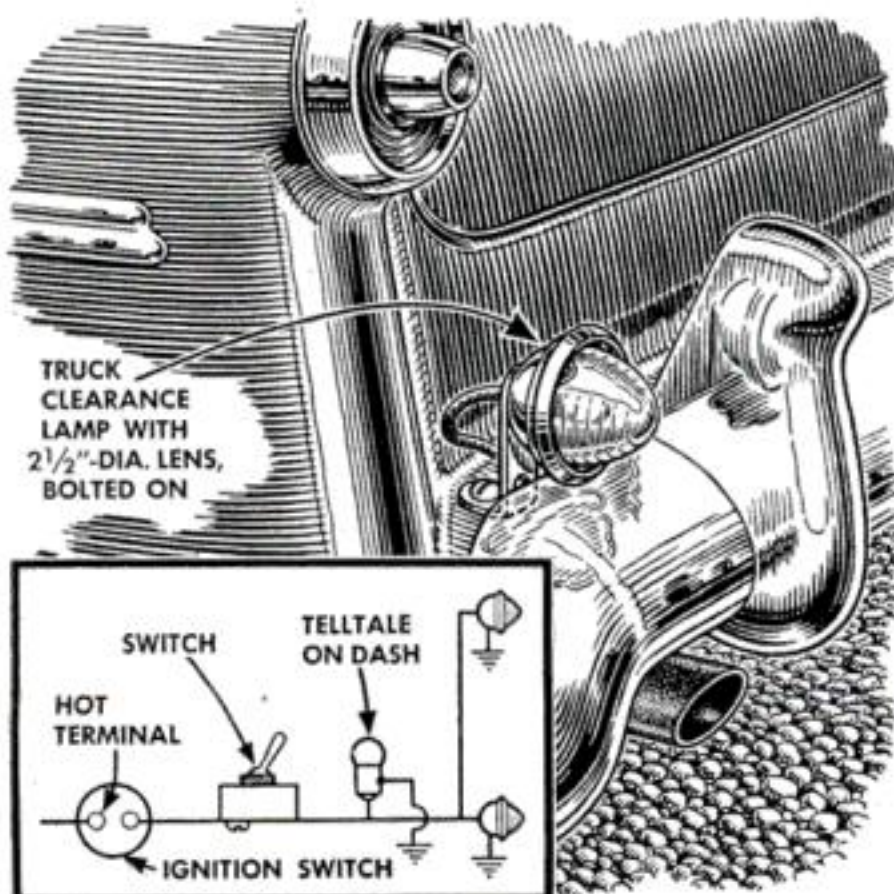
# Hints from the Model Garage



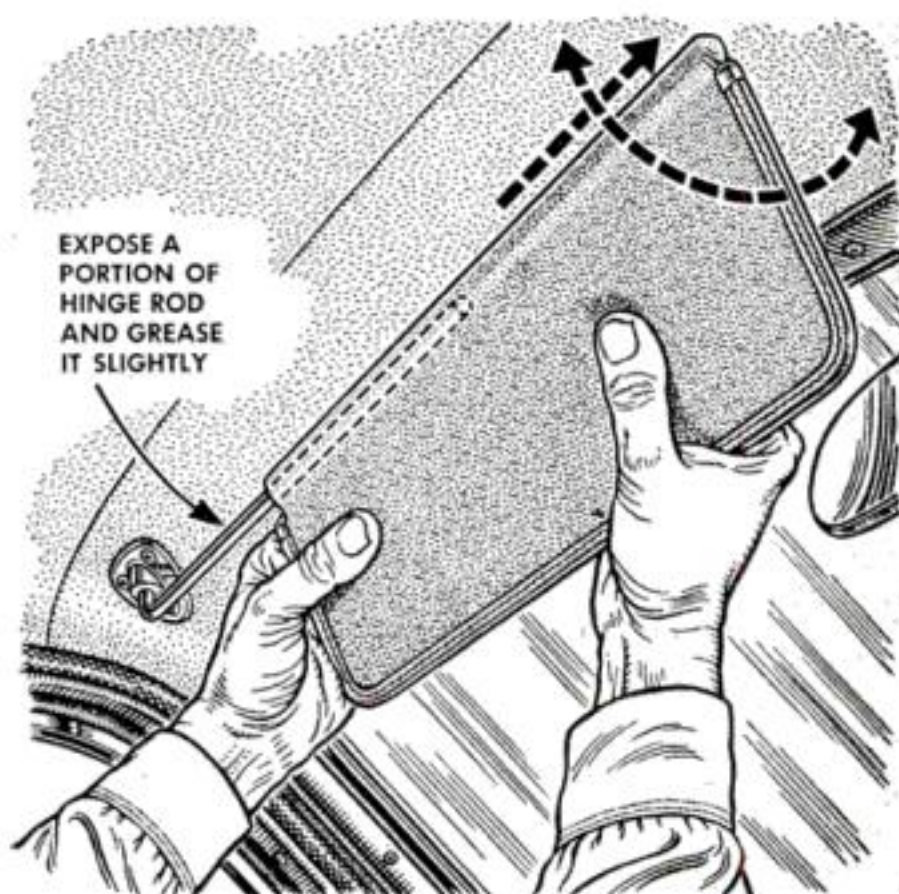
**Protect the car finish** if you use a mop-type washer like this. Slit a piece of rubber garden hose lengthwise and slip it over the handle. In cold weather the hose will also keep your hands warmer.



**A paper-cup dispenser** mounted in the trunk of the car is a handy accessory for those who have frequent picnics or roadside snacks. Sheet-metal screws will probably be best for mounting it.



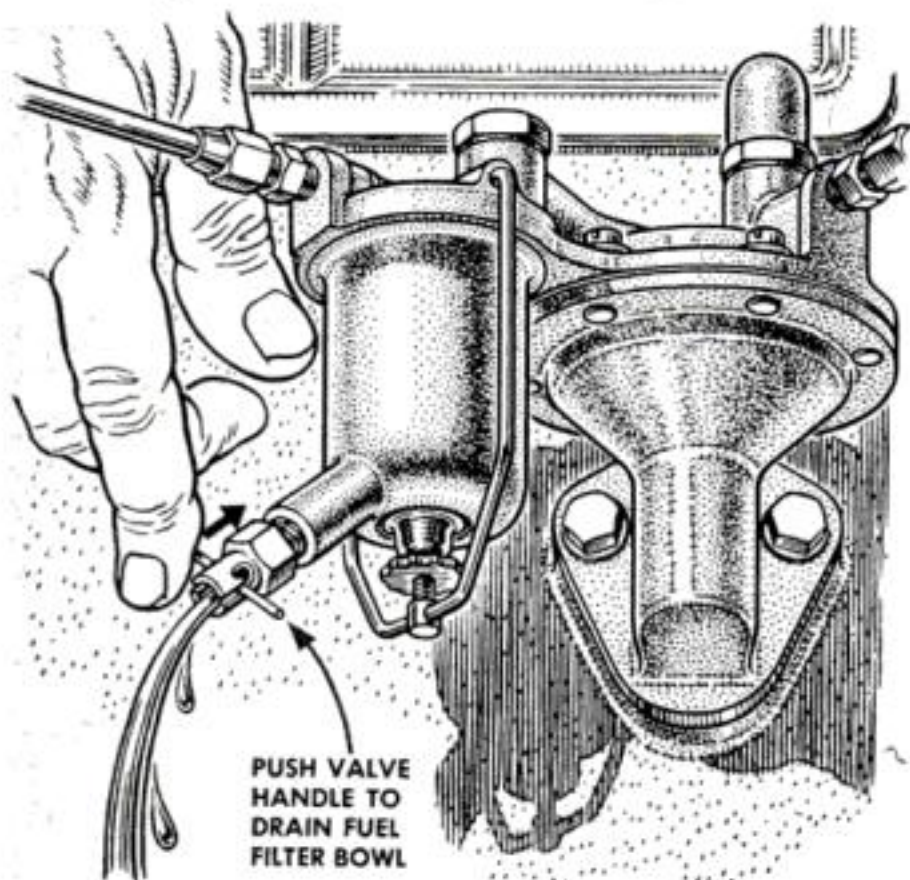
**You can have back-up lights**—practically in a jiffy. Buy a pair of chrome-plated truck clearance lights with clear lenses. They come complete with mounting brackets and are easily bolted in place. Wire in parallel. Control with a manually operated switch on the dash.



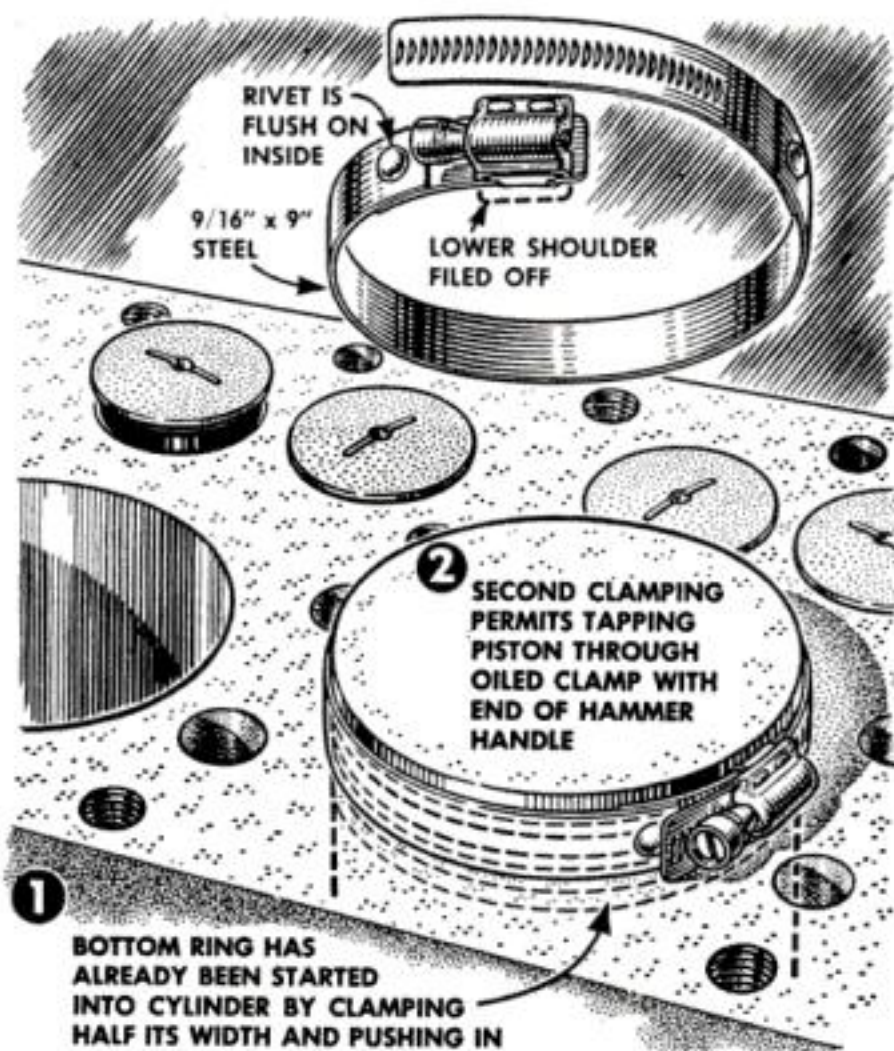
**Up-and-down movement of a sun visor** can be made easier on some cars by pulling it about halfway off the hinge rod with a twisting motion and applying just a touch of petroleum jelly. Don't pull it too far or apply too much jelly—you may loosen the visor too much.



## More Hints from the Model Garage



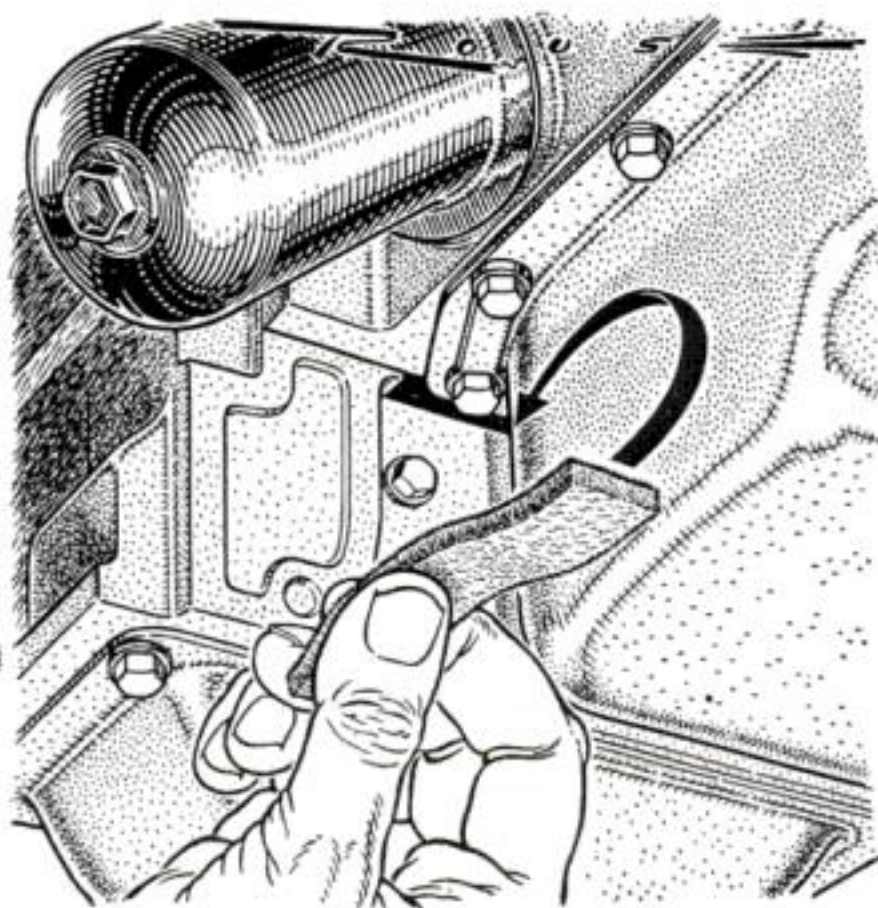
**Quicker draining of fuel sediment** can be provided in some cars and tractors by fitting on an airplane-type filter bowl in place of the regular glass bowl. These bowls have a drain valve at the bottom, which makes it unnecessary to remove the bowl itself. They are made in two diameters for light-plane fuel lines.



**A piston-ring compressor** can be improvised at little cost from a worm-gear hose clamp. File off one shoulder from the screw housing, hacksaw the gear band from the gear housing and rivet a strip of steel 9/16" wide and 9" long between them. Use the compressor as shown, first to compress one ring, then those above.

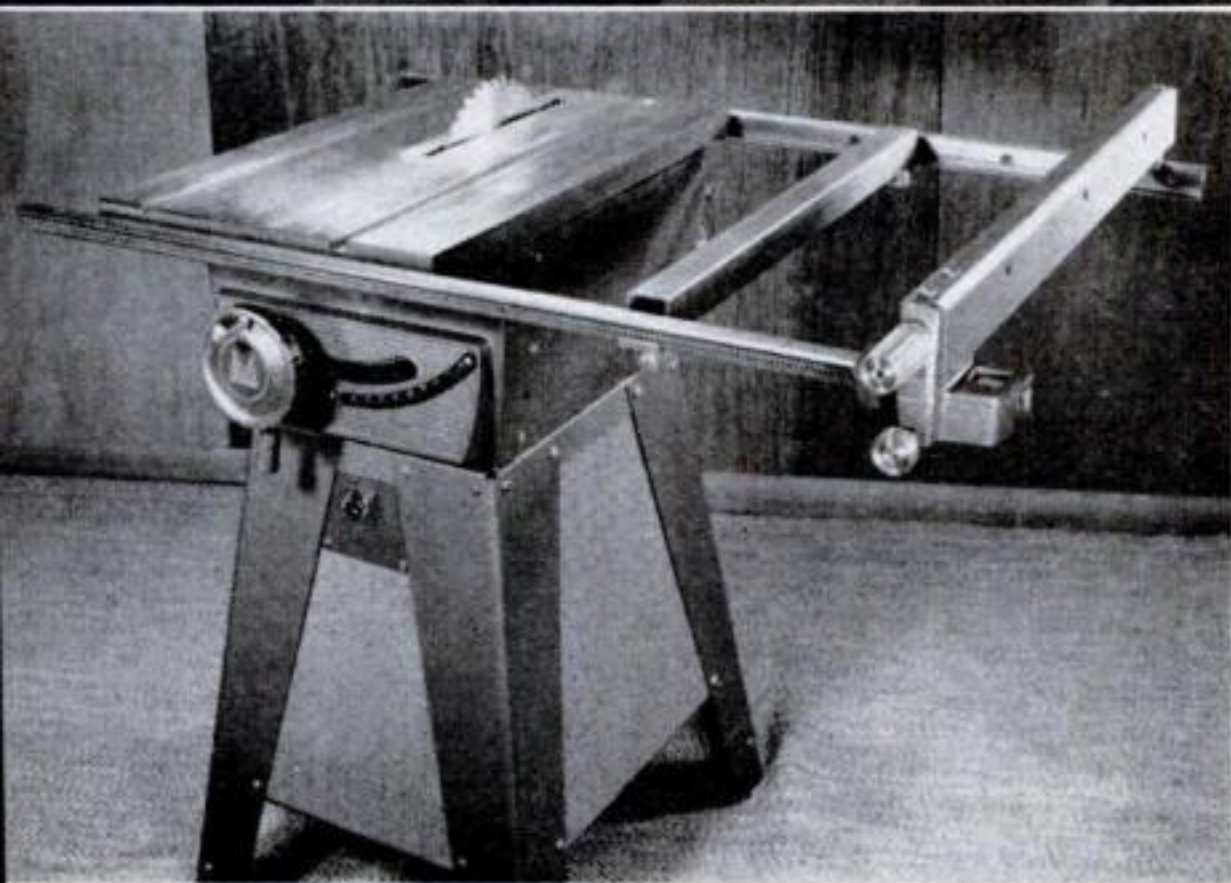
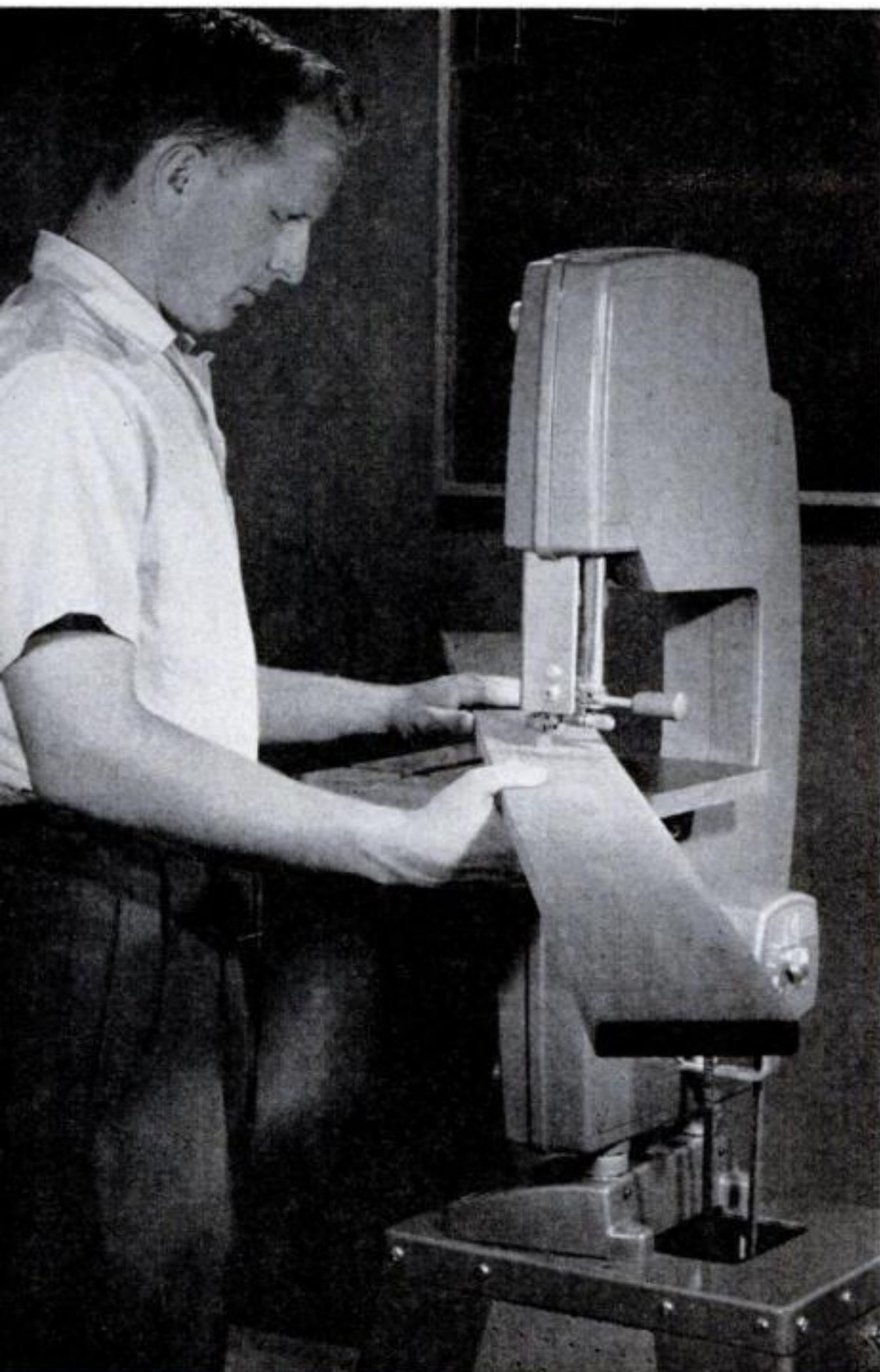


**Fleece polishing pad gummed up** with rubbing compound and polish? Put the buffer on the floor and turn it on, holding with one hand. With the other put a new wire brush gently against the fleece. This combs it out as clean as new.



**Cement a piece of felt** over the openings that you'll find on some Chrysler-built cars between the rear of the oil pan and the left and right sides of the front face of the clutch bell housing. This keeps dirt out of the clutch assembly.





# 2 New Saws Perform New Tricks

***Fresh engineering ideas are brought to single tools by makers of a multi-purpose machine.***

**W**HEN the manufacturer of a combination tool adds single-purpose tools to the line, it's news. In the case of a table saw and a band-saw announced by Magna, makers of Shopsmith, there are some "firsts" that call for a quick double take. Both tools do things their kind haven't done before.

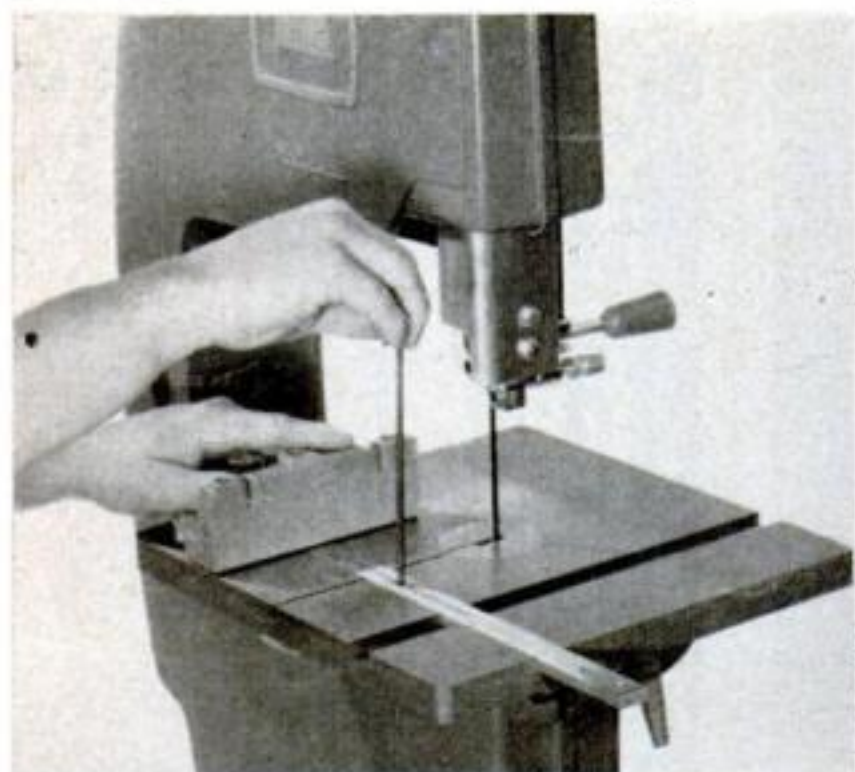
The new 9" tilt-arbor saw has built-in extension bars that give it 26" of rip capacity—but with a twist. There's a traveling cross-bar that will support long work for crosscutting. Saw blades are mounted on detachable arbors; to change blades, you remove the arbor with a long hex wrench and mount another with the blade already on it. There is no need to block a saw tooth or use a wrench deep in the innards of the machine to take a blade off.

A single control knob sets both depth of cut and arbor tilt, the latter through a tricky speed gear that lays the blade over to 45° in about 10 turns and is claimed to be nonclogging. Zero and 45° tilt stops can be adjusted from outside the saw housing with an Allen wrench.

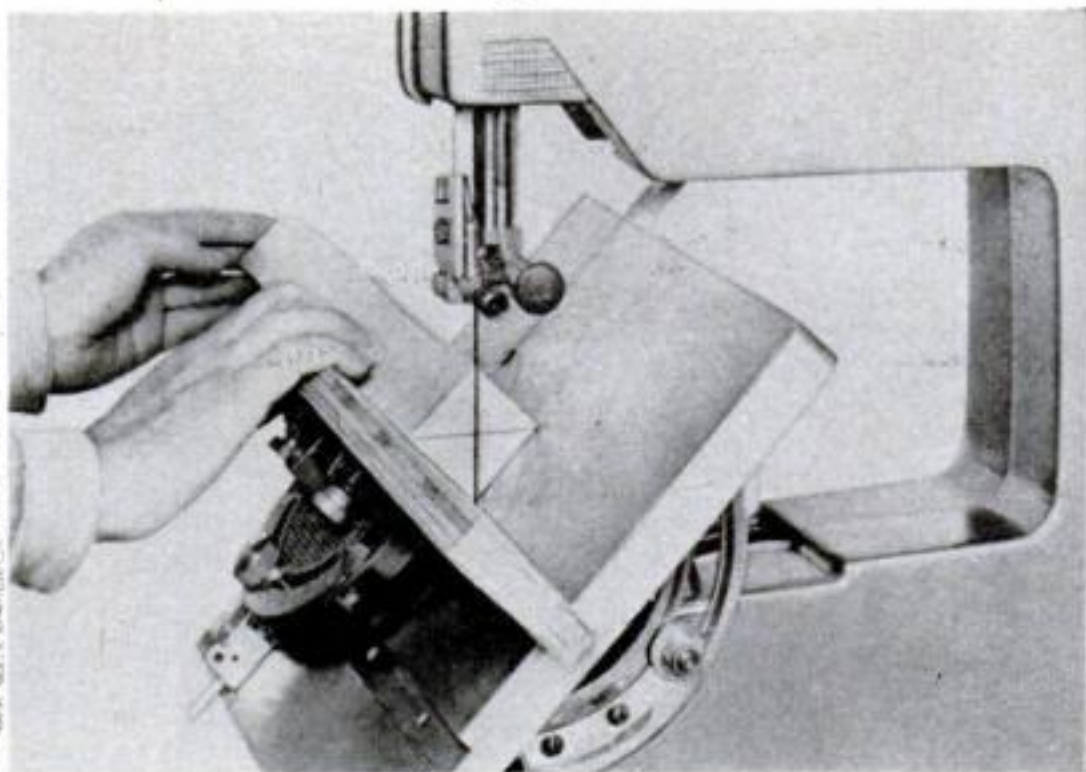
Even the table insert is different; it runs through to the back



## **Bandsaw has dual table grooves and reversible blade guides**



**SLIT MITER-GAUGE BAR** can be expanded to lock in either table slot with a twist of a wrench. The dual table slots at right angles to each other are the first of their kind on bandsaws.



**LOCKED IN A GROOVE** and fitted with a wooden facing, the miter gauge becomes a fence for angle ripping, as shown above, or for resawing lumber (slicing thick stock thinner).

table edge, so there is no slot end for work to catch on. Colored yellow, the insert gives visual warning of the danger zone around the blade. The fence is self-aligning in any position. It has a vernier adjustment below the lock knob, and can be set against a scale on the table bar. An easily attached saw guard with a lifting handle is provided.

**Even belt tension.** Running on double-row ball bearings, the arbor is driven by two matched V belts. Belt tension is

maintained even at 45° tilt, when the weight of the motor is ineffective, by a positive linkage working through a spring.

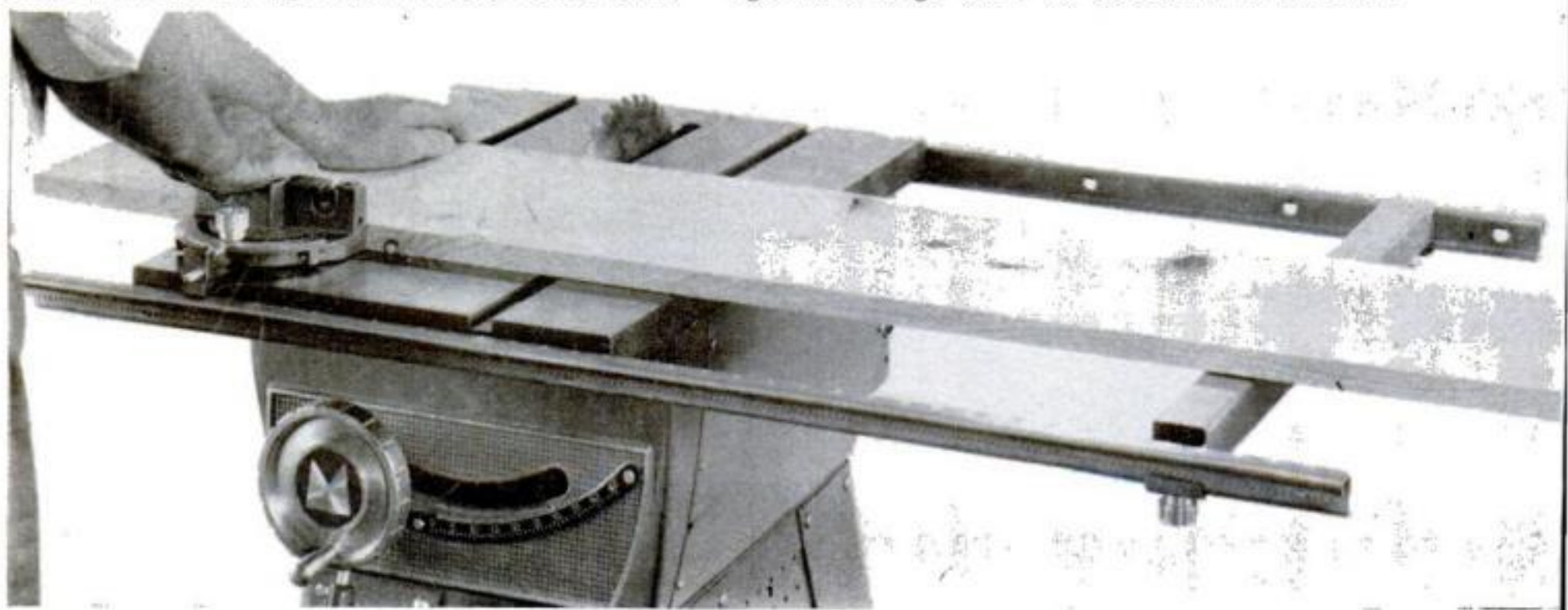
Priced at about \$100 without the motor, the table saw can be mounted on a single stand or in combination with the Magna jointer on a newly available double-tool stand.

**The bandsaw.** Bandsaw news is made by a different wheel design that does away with the familiar tracking adjust-

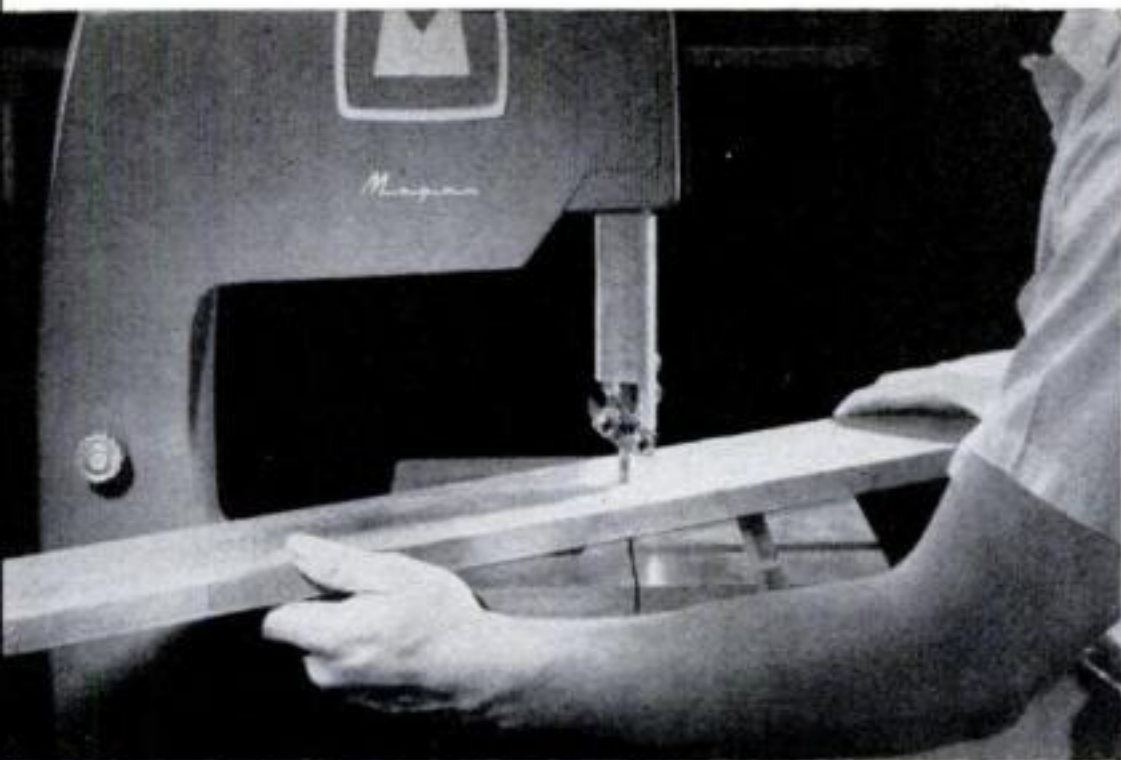
## **Extension bars give table saw great ripping and crosscut capacity**

**ADJUSTABLE CROSSBAR** between the long table bars supports work for crosscutting as below. It can be locked at any desired position by the knob beneath it. Rip fence rides on same bars.

Control knob is pushed in to set depth of cut, pulled out to adjust tilt. Pointer mounted on the saw carriage indicates the angle of tilt against a large scale on the front of the saw.



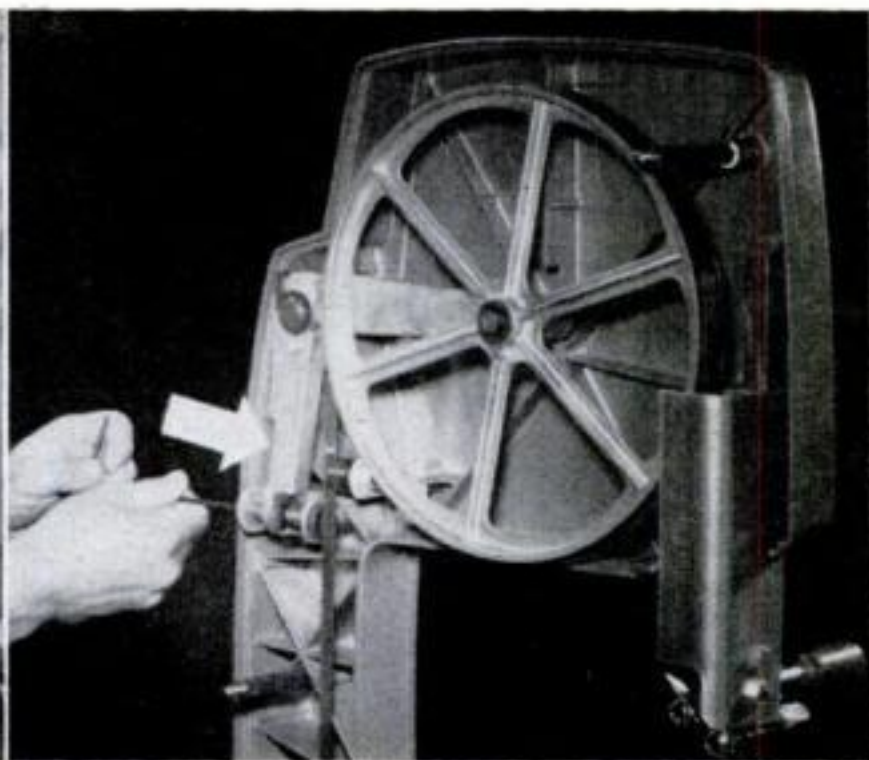




**THIS CUT IS SQUARE** to the board. Reversed guides twist the blade at  $45^\circ$ . Stock is cross-cut by feeding diagonally across table. Boards up to  $4\frac{1}{2}$ " wide bypass frame as shown. Blade

ment, by a blade that twists in the cutting area for crosscutting long boards, and by a second table slot, at right angles to the usual one, in which the miter gauge can be slid or locked.

Instead of being crowned (convex on the rims), the new wheels are coned, with the axles inclined as shown in the small drawing on this page. Since a blade tends to climb to the high side of a turning wheel, there is a constant backward thrust. This is taken by rollers be-



tension is adjusted against a scale (arrow above) for various blade widths. Coned wheels cause blade to track against rollers as at right.

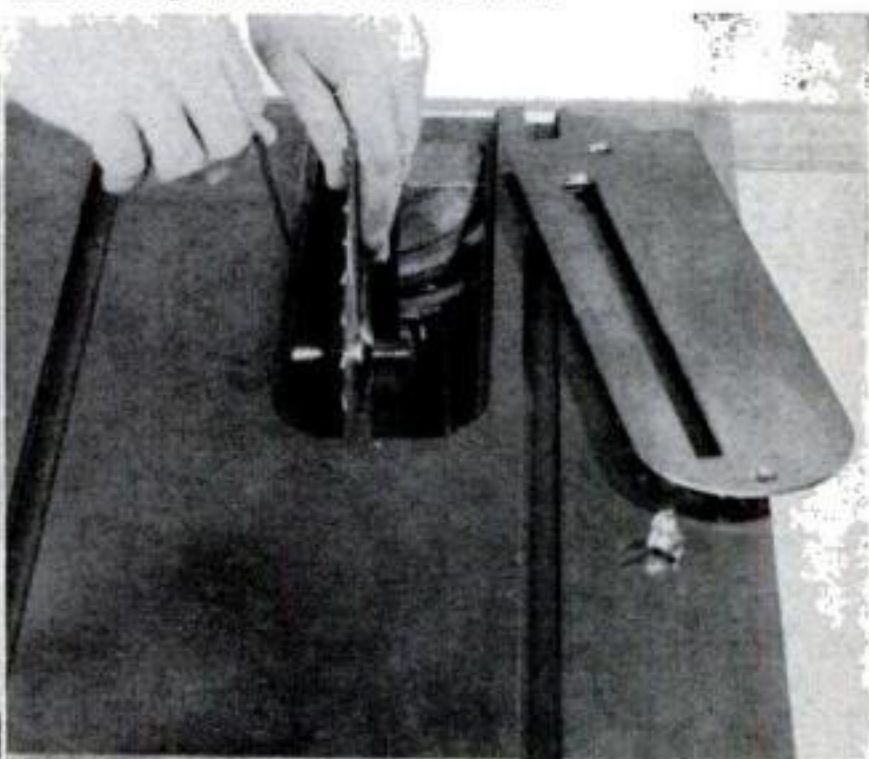
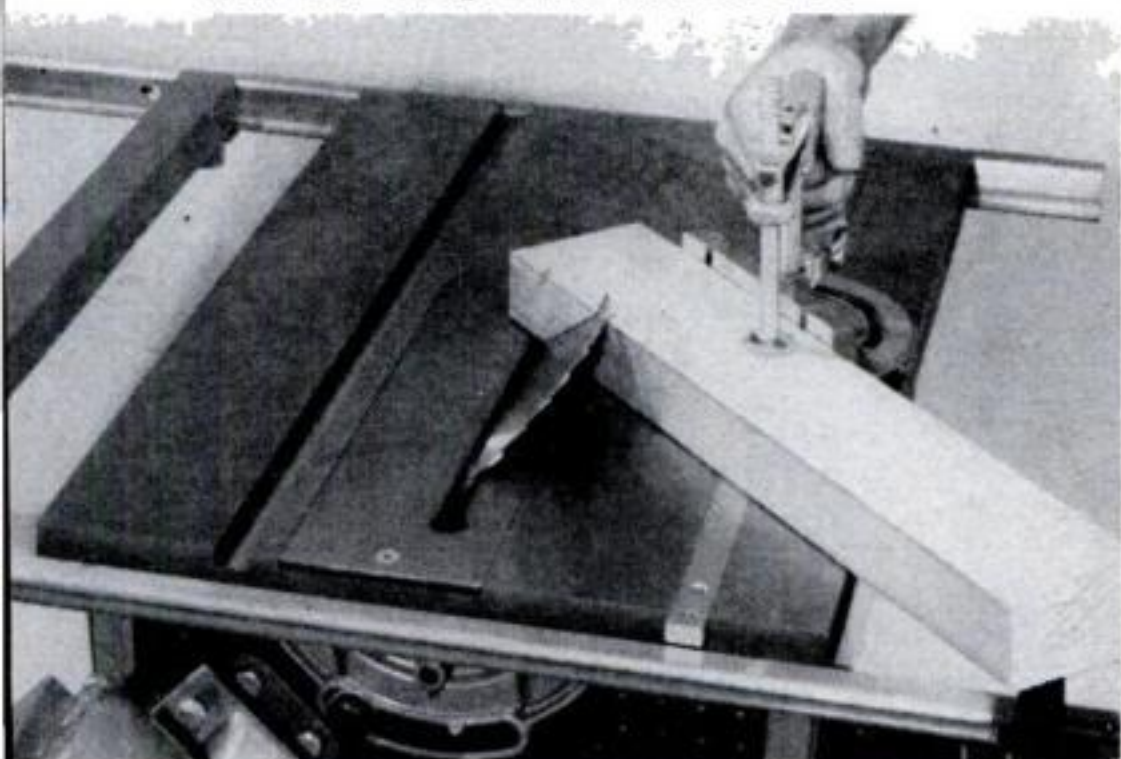


hind the blade, which therefore tracks automatically. There is no wheel-tilt adjustment as usually provided on bandsaws to make the blade track.

**Changing blades.** Blade tension is set with an Allen wrench by reading a tension gauge marked for various blade widths. To change blades, the polystyrene cover is removed, tension slacked off, blades are switched and the new one retensioned. The blade guide can be

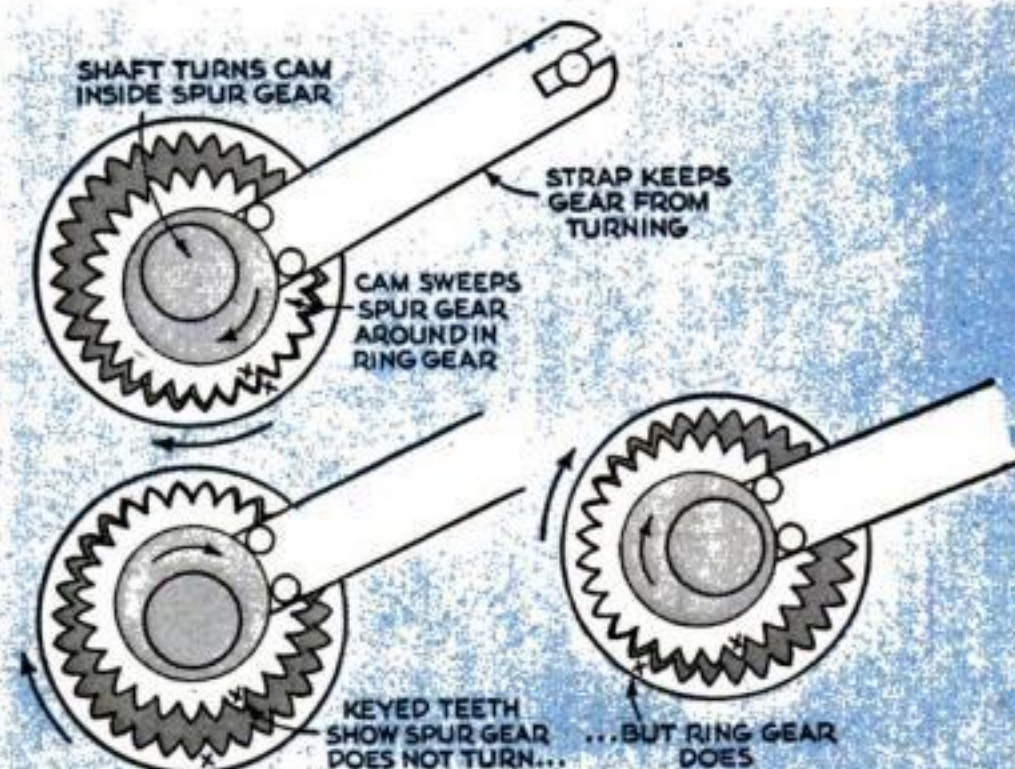
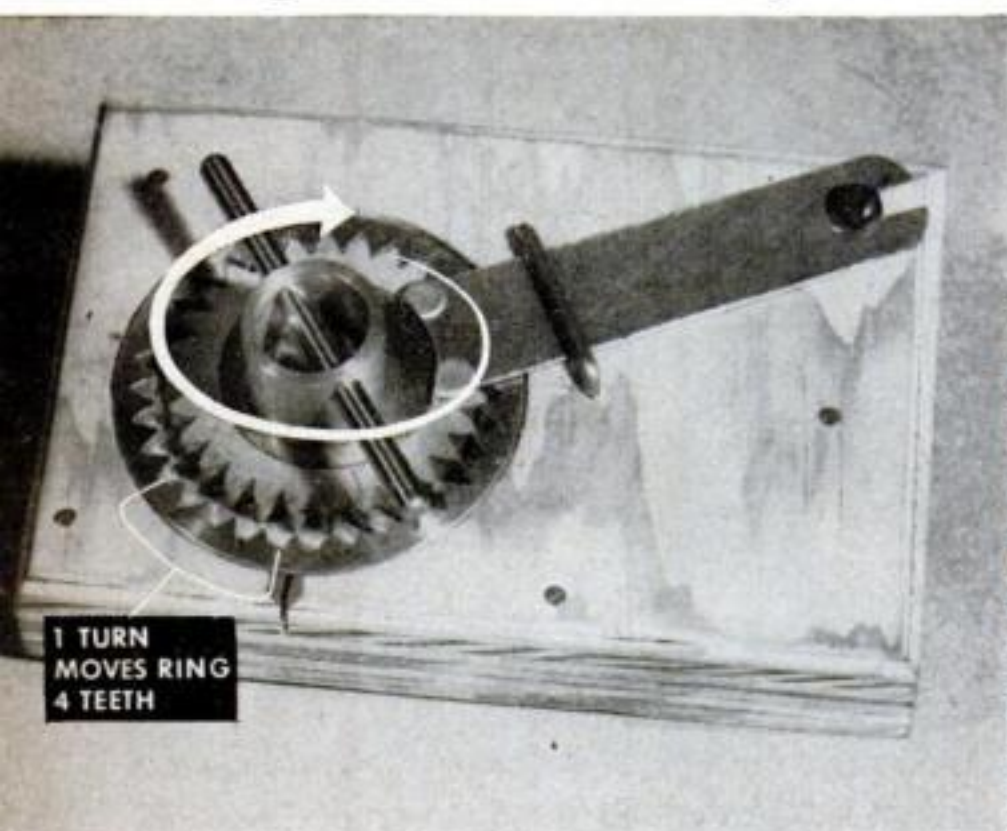
**BLADE IS LOCATED** to afford a  $13\frac{1}{2}$ "-deep table area in front of it. Pistol-grip handle for the miter gauge is available as an extra. The saw cuts  $1\frac{7}{8}$ " deep when tilted to  $45^\circ$ .

**A LONG HEX WRENCH** is the only tool needed to remove detachable blade arbor. This wrench has a depth scale on it, which gives true depth of cut regardless of blade size.





## Two gears mesh but only one turns in table-saw tilt mechanism



**INGENIOUS "JITTER" GEAR** is illustrated by model above. The control shaft turns a cam inside a spur gear, which is kept from turning by a sliding strap. Eccentric action "walks" the

28-tooth spur gear around in a 32-tooth ring gear as shown above. Since the spur gear cannot turn, ring gear must move by the difference of four teeth per revolution between them.

raised or lowered with one hand operating a generous-sized lock knob.

The bandsaw can be mounted on single or double power-tool stands or on the Shopsmith combination tool. It is priced at about \$80 without motor.

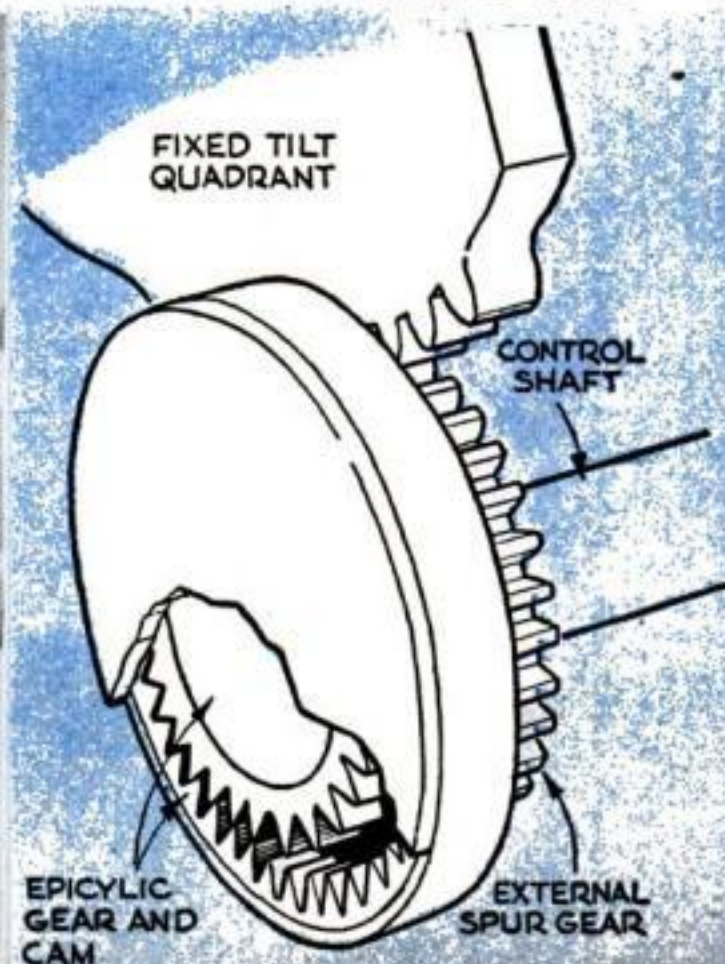
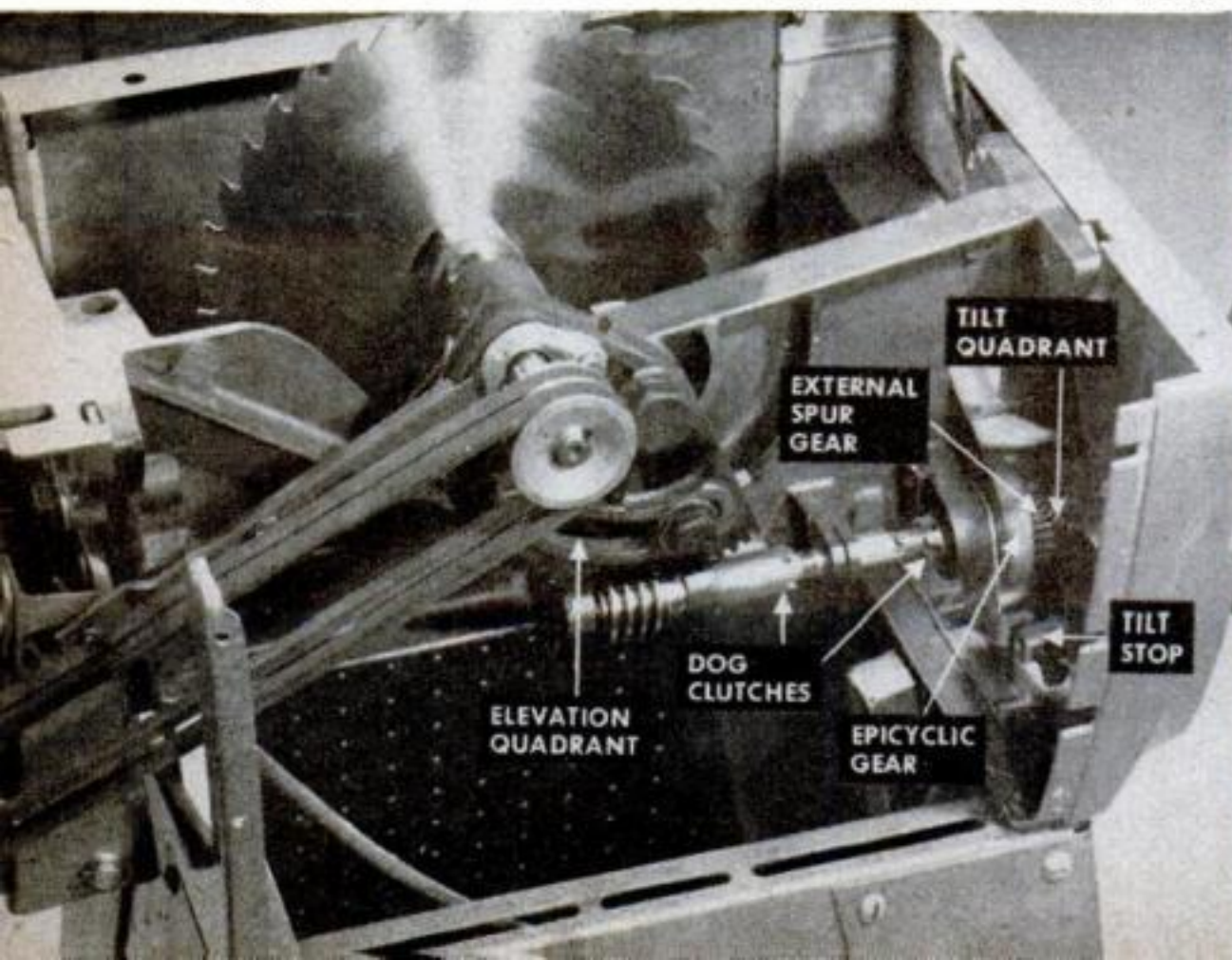
Magna's line currently includes a 6" belt sander that can be used horizontally or vertically, an air compressor for spraying paint and lacquer and inflating auto tires, a jigsaw and a jointer. These are made so that any one can be mounted on the Shopsmith and driven by its motor.

**Ready-made stands.** New to the Magna line is a single-mount stand for about \$20, and a double-mount stand for about \$23. On the latter, two power tools such as the jigsaw and sander, or the bandsaw and jointer, can be mounted side by side. The table saw and jointer can also be so mounted. A spring-loaded pulley maintains drive-belt tension on the jointer no matter at what height the saw happens to be, so that the work can be shifted from jointer to saw without changing the depth of the cut. **END**

## How a single knob lifts blade and tilts arbor of the table saw

**SAW CARRIAGE IS TILTED** by an external gear cut on the outside of the ring gear. This external gear climbs a curved rack integral with

the saw front, tilting the carriage. Epicyclic gear is irreversible despite its quick-acting ratio; weight of motor cannot drag it back.

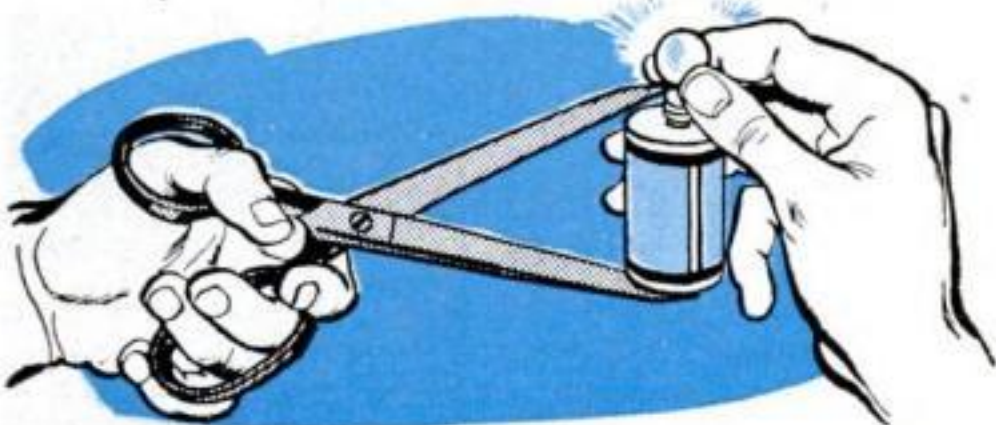




# Keeping the Home Shipshape



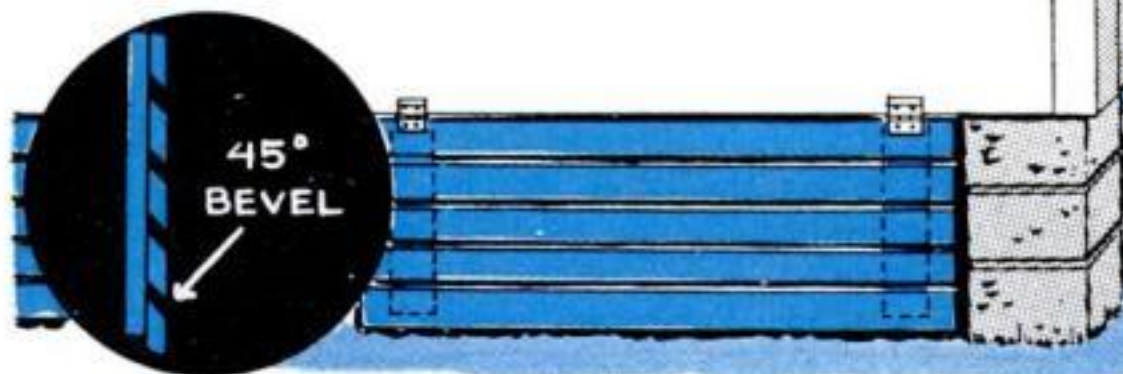
**STORE LARGE TRAYS** within a pair of curtain rods or towel rods. You can screw the rods to an inner sidewall of any deep cupboard or on the outside of an end cabinet or an island arrangement as shown here.



**WHEN A FLASHLIGHT FAILS**, run a test with a pair of scissors held as shown. If the bulb lights, the trouble must be in the flashlight case or in the switch. If the lamp doesn't light, either the bulb or the battery is bad and you'll have to test the lamp by using a new battery with it, or check the battery with a new lamp.



**CHECKING OFF JOBS** that have been done gives youngsters a feeling of accomplishment. Put up a blackboard listing chores, then let the workers wipe the slate clean every evening.



**CRAWL SPACE** stays dry in driving rain if sealed off with louvered screens made with one-by-threes. A 45° bevel at top and bottom of each louver allows plenty of ventilation. Hang the screens on hinges or sash hangers and

fix screw eyes to the bottom louvers to take lengths of  $\frac{3}{8}$ " rod. Pushed well into the soil, the rods will keep the screens from banging in the wind; or pulled up, offer access to the crawl space beneath house or porch.



*Please turn the page for more home tips*

SEPTEMBER 1956 231



## More Home Tips

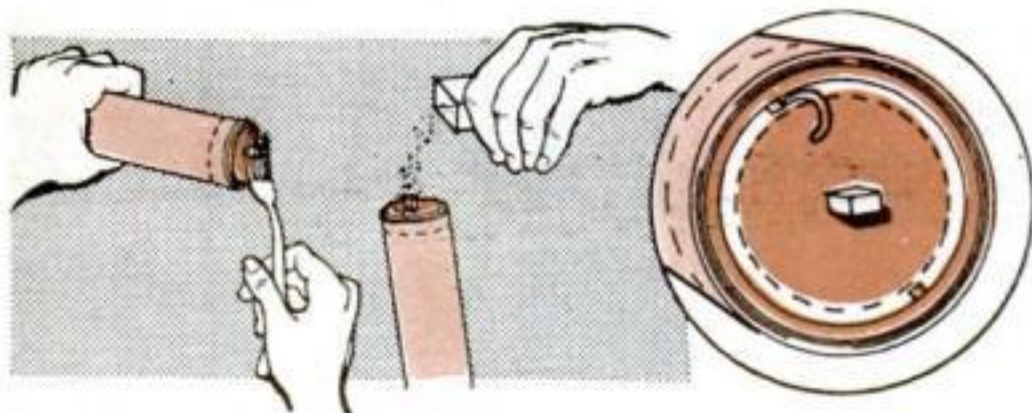
**A CLOTHESLINE PROP** that falls down on the job can be made to stand up even in a strong wind with a little redesigning. Just increase the length of the V cut in the end and finish off with a hole that will take a tight grip on the line.



**BEFORE STOWING AWAY LUGGAGE**, touch up any scuffed areas with a coat of matching liquid shoe polish. After it has dried, finish with a thinned coat of pure white shellac to hold the polish and give a glazed finish.



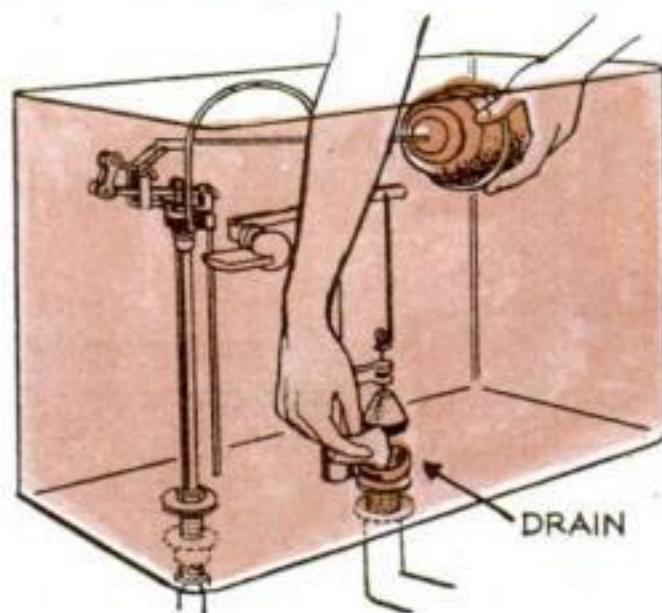
**A TIGHT-STUCK LID** of the screw-on variety can often be coaxed to give with the aid of a rubber glove. Turn back the cuff of the glove and slip the double fold over the lid to cushion your hand and to provide a non-slip surface that you can get a firm grip on.



**IF A WINDOW SHADE SNAPS UP**, dust in some graphite. To distribute the powder, wind the spring up tighter, using the tines of a fork (left), and release. The graphite will make the pin-pivots on the tiny catches hold again.

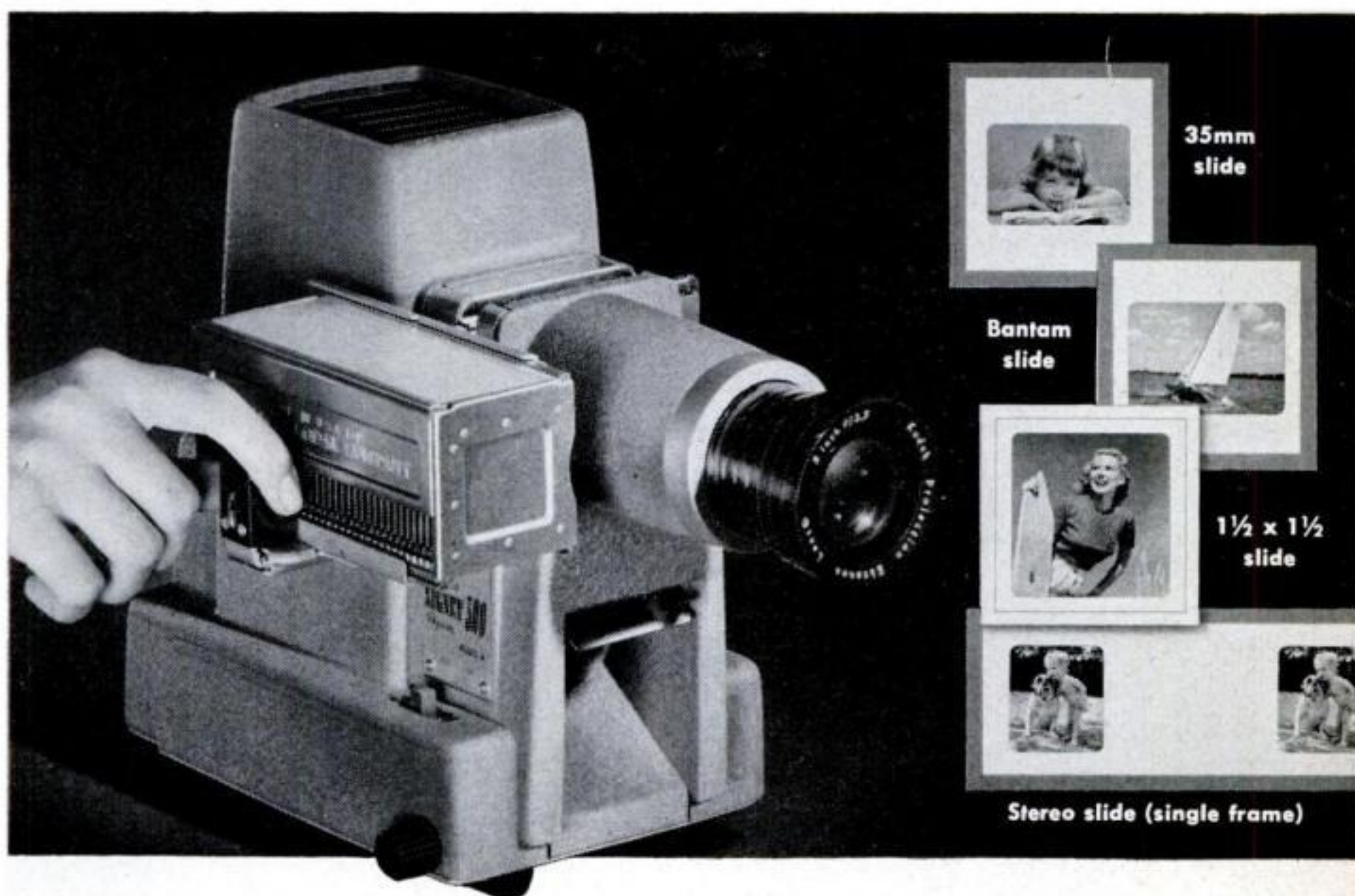


**A CLOTHESPIN BAG** that can be hung on a closet rod will hold a large collection of children's or men's socks. Selection is easier than when socks are scattered around in a large and crowded drawer.



**WATER LEAKAGE** from a flush tank may occur if deposits keep the rubber bulb from seating tightly. Clean the drain opening periodically. Flush the tank, holding the float up to keep it empty, and scrub the drain with steel wool.





## Now! Shoot the size of color slides you like best... **Kodaslide Signet Projector handles them all!**

You probably already know why Kodaslide Signet Projectors are the toast of discriminating color slide fans. Their thrilling "big-screen" performance and handling ease have made them famous.

You probably know, too, that there's a wide selection of Signets to choose from—one with exactly the features you want at the price you want to pay.

But did you know this? . . . *No matter which model you choose, your Signet will project all 4 popular sizes of color slides!*

Think of the satisfaction of being able to project 35mm slides, Bantam slides, *big* transparencies from size 620 or 120 color film—or even single frames of stereo slides. With a Signet, you can project your friends' slides—no matter which size they take!

Your Kodak dealer will gladly show you the Signet 300 (shown above) that comes complete with an automatic slide changer and carrying case for only \$79.45. Other superb Signets from \$59.50 to \$105.50. Most Kodak dealers will arrange convenient terms.

**Kodaslide Dial-Lite Viewer**—Plugs into any house circuit. Brightness knob dims or brightens light to suit subject being viewed. Accepts *all 4* popular sizes of color slides (described above). Complete with desk tray for slides and viewer, **\$12.95.**

*Prices are list, include Federal Tax, and are subject to change without notice.*

**Eastman Kodak Company**  
 Rochester 4, N. Y.



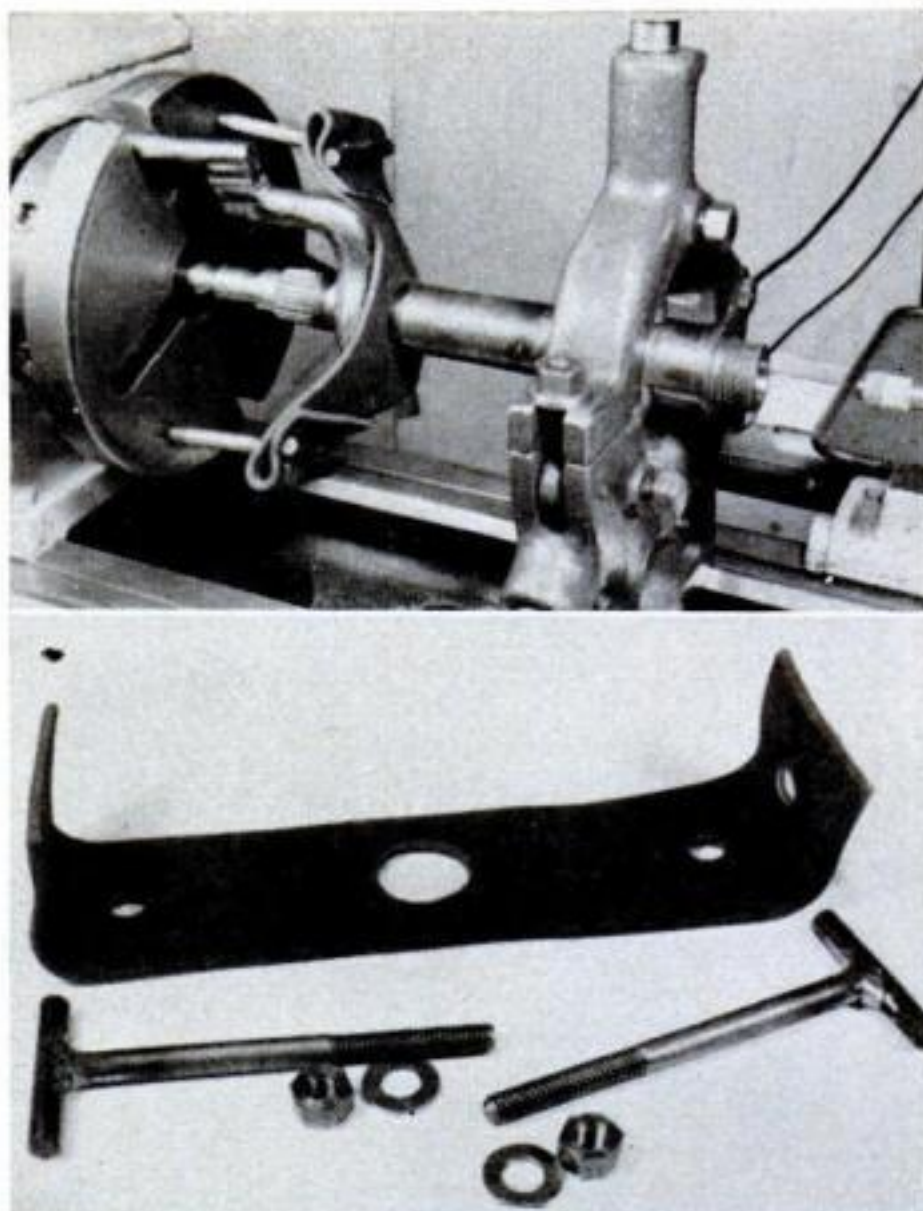
**Kodak**  
 TRADE MARK



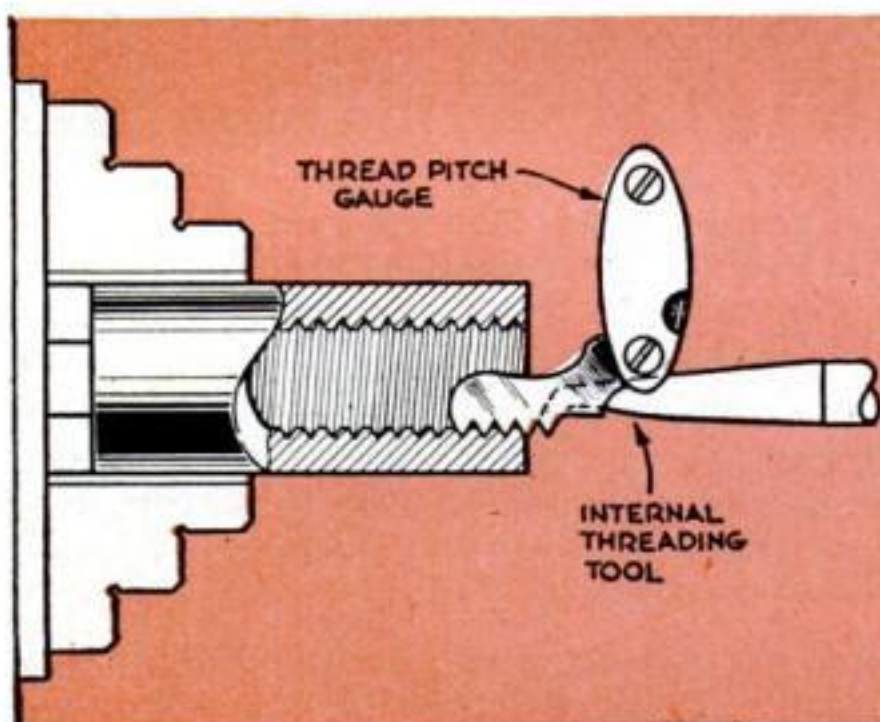
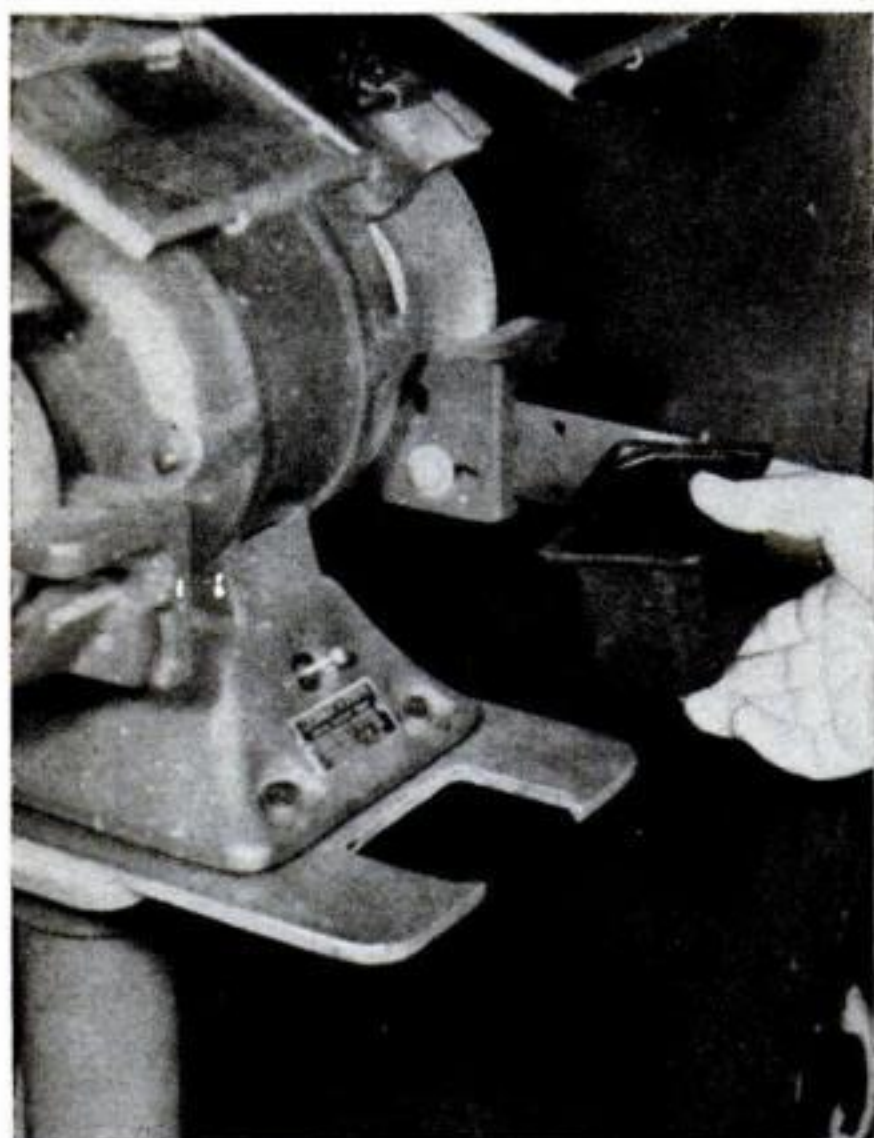
# New Shop Ideas

**Strap Holds Work on Center.** An accurate way to bore a socket or internal taper in a shaft is to run it in a steady rest with one end tied against the live center. But lacings used for this may loosen, letting the work slip off.

A scrap of leather belting with five holes punched in it, plus two T bolts made by welding on crossbars or bending a head on threaded rods (bottom right), will anchor the work securely. Double the ends of the strap over and push a bolt through both holes in each end. Mount with washers and nuts behind the faceplate (top right).



**Plate Holds Coolant Can.** A  $\frac{1}{4}$ "-thick metal plate, sandwiched between a grinder and its support, will hold a flanged water can. Whatever its shape, cut the opening far enough inside so that the can will not slide out, but can be lifted out.—J. C. Magee, Schenectady, N. Y.



**Picking Up Internal Threads.** Setting a tool to finish a partly cut internal thread is easy with a thread-pitch gauge.

Engage the half nut and run the tool near the end of the work under power to eliminate backlash. With the nut still engaged, hold the proper gauge leaf on top of the tool and in the existing thread groove, letting a few teeth protrude. Align the tool point with one gauge tooth by adjusting cross and compound feeds. A magnifying glass will help.

As a check, set the tool with the cross feed to barely engage the groove, and pull the lathe belt by hand a few turns.



MEN WITH MECHANICAL SKILLS:



## CAN YOU MEET THIS CHALLENGE?



### Mechanics Creed

Upon my honor I swear that I shall hold in sacred trust the rights and privileges conferred upon me as a certified mechanic. Knowing full well that the safety and lives of others are dependent upon my skill and judgment, I shall never knowingly subject others to risks which I would not be willing to assume for myself, or for those dear to me.

In discharging this trust, I pledge myself never to undertake work or approve work which I believe to be beyond the limits of my knowledge; nor shall I allow any superior to persuade me to approve aircraft or equipment as airworthy against my better judgment; nor shall I permit my judgment to be influenced by money or other personal gain; nor shall I pass as airworthy aircraft or equipment about which I am in doubt, either as a result of direct inspection or uncertainty regarding the ability of others who have worked on it to accomplish their work satisfactorily.

I realize the grave responsibility which is mine as a certified mechanic to exercise my judgment on the airworthiness of aircraft and equipment. I, therefore, pledge unyielding adherence to these precepts for the advancement of aviation and for the dignity of my vocation.

If you are a man who takes real pride in a job well done, the Air Force offers you a challenging and rewarding career. The safety of our country, and the lives of its defenders, depend on your accuracy and devotion to duty. Act today and put your skills to work tomorrow—in the U. S. Air Force.

GO PLACES FASTER ON  
THE ALL VOLUNTEER  
TEAM

**THE U.S. AIR FORCE**

#### PASTE COUPON ON POSTCARD

*And Mail To*

M-40-PS3

Airman Recruiting Information Branch  
Box 2202  
Wright-Patterson AFB, Ohio

Please send more information on my opportunities for enlisting in the U. S. Air Force. I am between the ages of 17-34 and reside in U.S.A. or possessions.

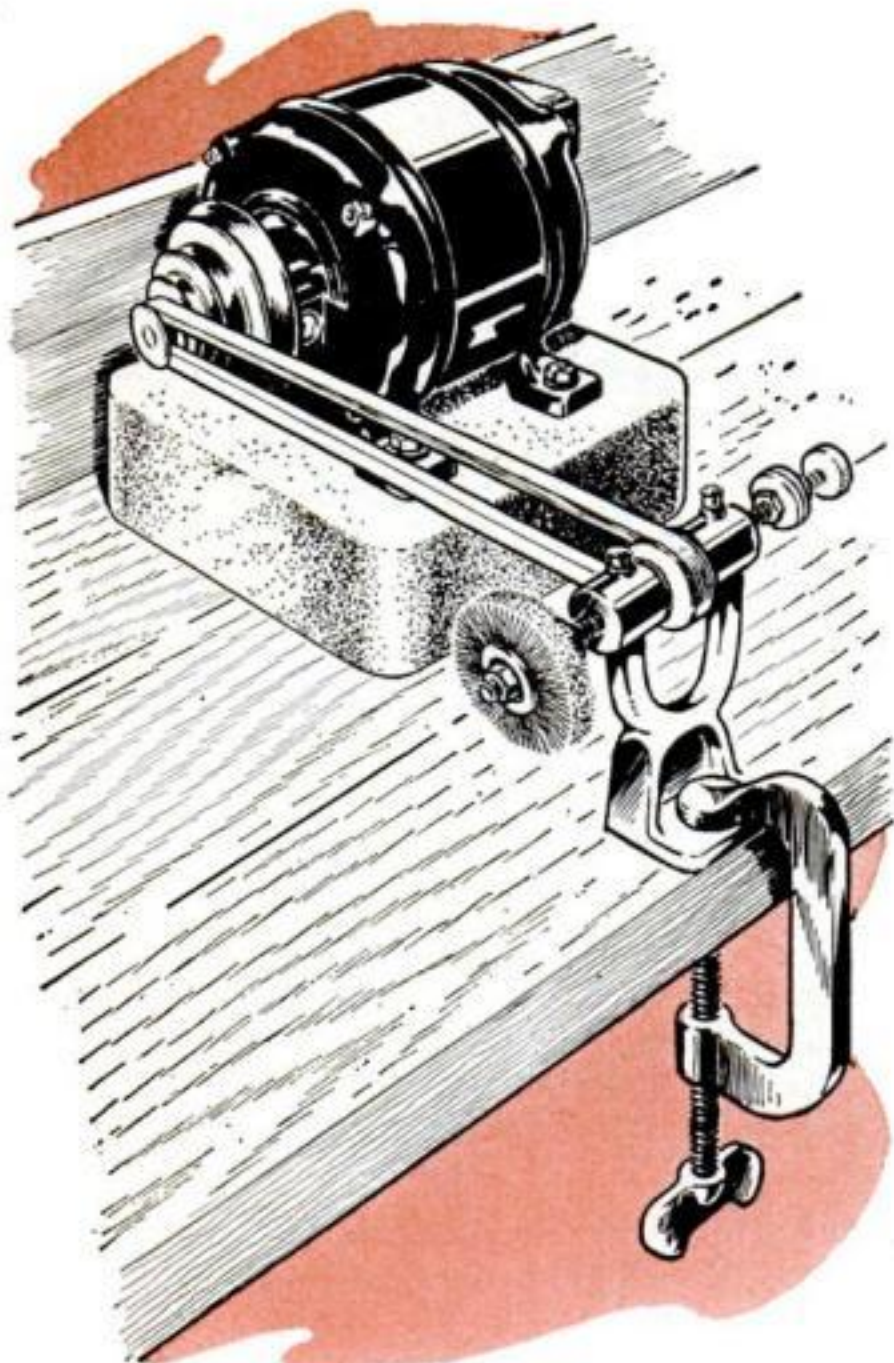
Name \_\_\_\_\_

Address \_\_\_\_\_ Age \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

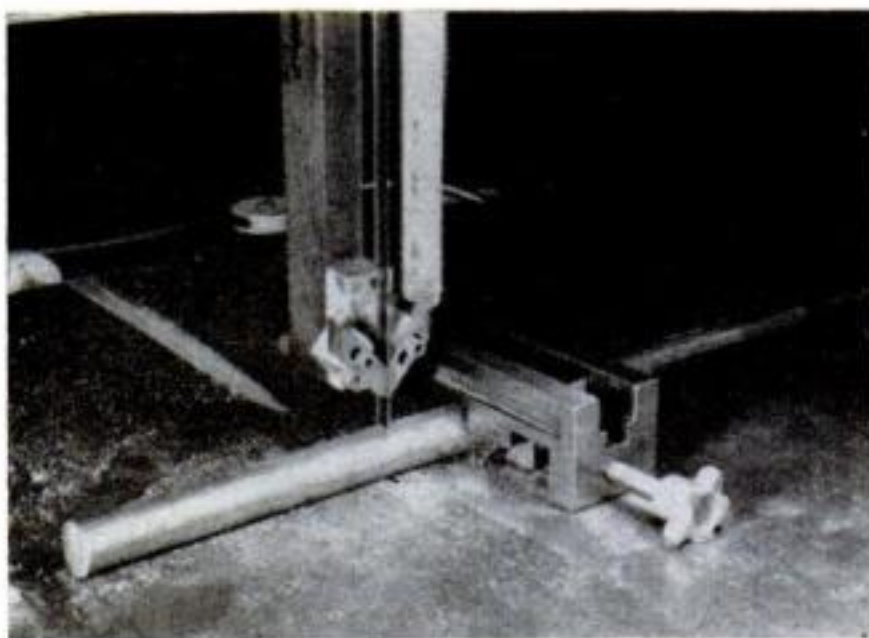


## More Shop Tips



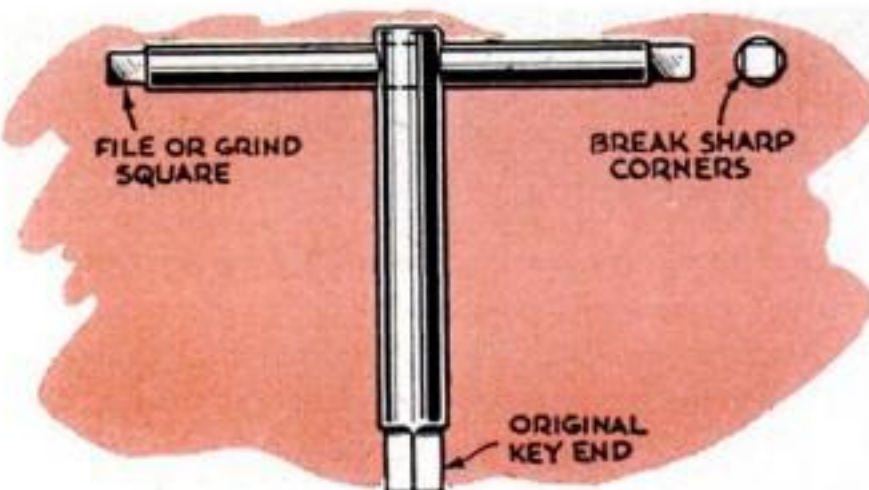
**Power Tools Made Demountable.** Bench space is so valuable in our shop that we set up the watch lathe, grinder, buffing wheel or sensitive drill only when needed. These machines are clamped to the edge of the bench, and small motors are mounted on heavy cast-iron blocks as above.

A motor is simply shifted into alignment and pushed back to tension the belt. There is no belt slippage. The rig is quickly put away to clear the bench for other work.—C. H. Willey, Concord, N. H.

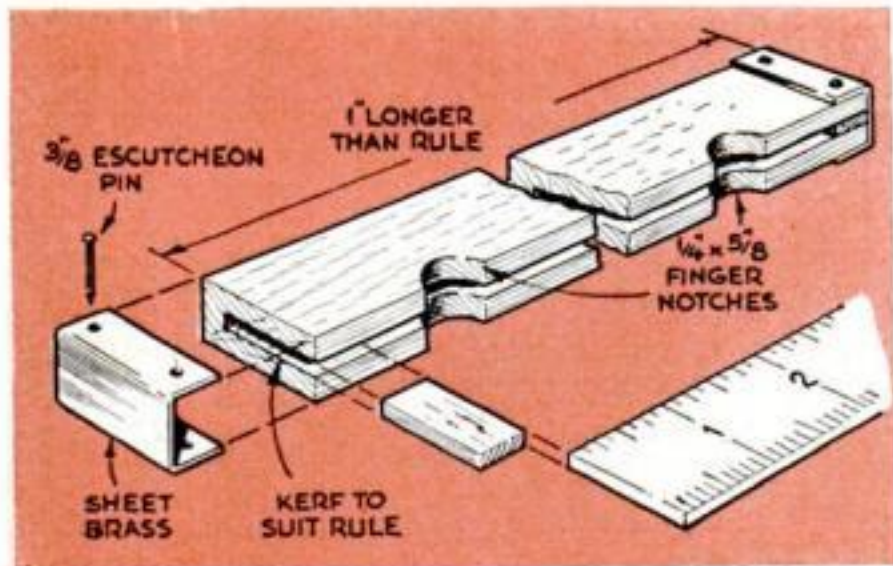


**Saw Round Stock Safely.** Hand-held round pieces, whether wood or metal, tend to roll against a bandsaw blade and jam in the cut. This may strip teeth, damage the work, and endanger your fingers.

A drill-press vise clamped upside down on the stock and resting on the table makes the job safe. The vise is a convenient hand hold and keeps the work from turning.—H. J. Gerber, Stillwater, Okla.



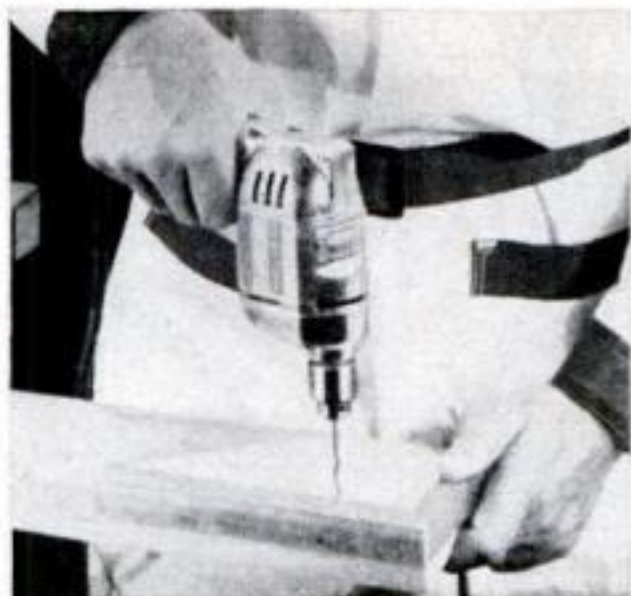
**Key Fits Three Chucks.** Where there are several chucks, each may require a different key, and if the right one is mislaid the chuck is useless. But the largest key can probably be made to fit three chucks. File or grind the two ends of the handle square as shown.—Frank La-Saracina, New York City.



**Case Protects Rule.** A machinist's steel rule will be saved many a nick if kept in its own case. In a  $\frac{5}{16}$ "-thick piece of straight-grained wood, rip a kerf deep enough to accommodate the rule. Glue in a small piece to close each end, and cut finger notches as shown at the left.

Bend U-shaped clips of  $\frac{1}{32}$ " sheet brass and fasten them on the ends with escutcheon pins riveted over. Finish with shellac.—John A. Blaker, Auburn, Mass.





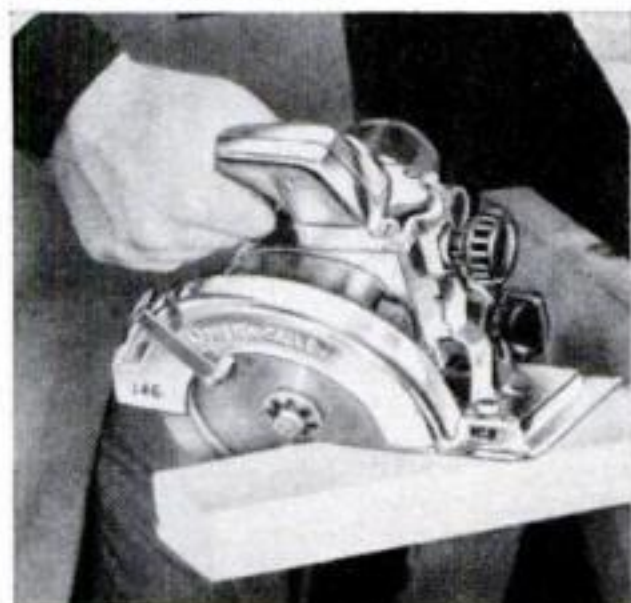
**Model 137 1/4" Drill.** Compact and handy, yet extra-powerful. Precision-ground gear chuck, trigger switch with locking button. Only \$26.95.



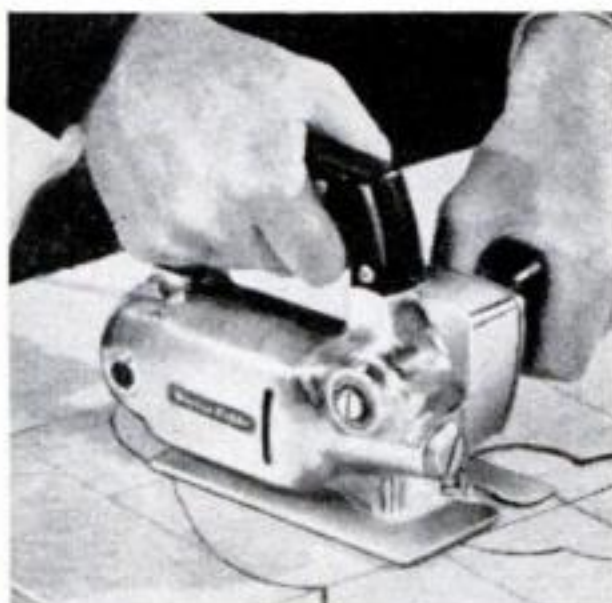
**Model 136 Sander.** Precision-built 3" belt sander handles every sanding job. Powerful universal motor, trigger switch, instant belt tracking control. Only \$69.50.



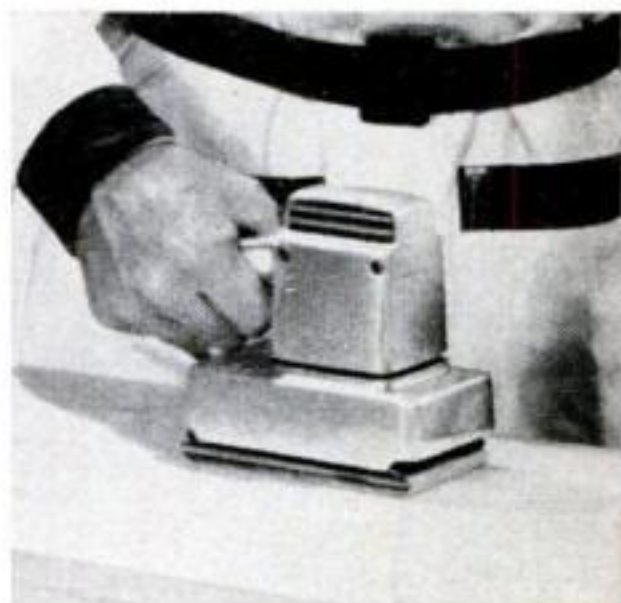
**Model 140 Roto-Jig.** Versatile 3-in-1 tool that's a high-speed router and rotary jig saw—accessory table makes it a precision shaper, too. Only \$49.95.



**Model 146 Saw.** Rugged 6 1/2" professional-capacity saw cuts 2" dressed lumber at 45°—makes every cut it takes to build a house. Only \$69.50.



**Model 148 Bayonet Saw.** Exclusive orbital action cuts up to 4 times faster. Full 2" capacity in wood, 3/4" in aluminum, 1/4" in steel. Only \$99.50.



**Model 145 Sander.** High-speed orbital motion sands with, against or across the grain—powerful universal motor gives long, trouble-free service. Only \$34.50

## To help you do the job better...

*the world's most complete line of  
portable electric woodworking tools*

Planning to "do-it-yourself"? You'll do it *better*, in far less time, with Porter-Cable *quality* electric tools. For fifty years, Porter-Cable has been the choice of *professional* craftsmen—the men who know what *really* counts in picking power tools.

"*Feel*," for example — perfect balance that's sweet and easy in your grip. *Performance* that comes from power and speed to spare. *Safety* that comes from advance features in tool design. *Construction* that's rugged and honest, for years of troublefree service.

You'll find them all in every Porter-Cable tool. *And you'll find value that no other tools can match — for, often as not, Porter-Cable quality costs no more!*

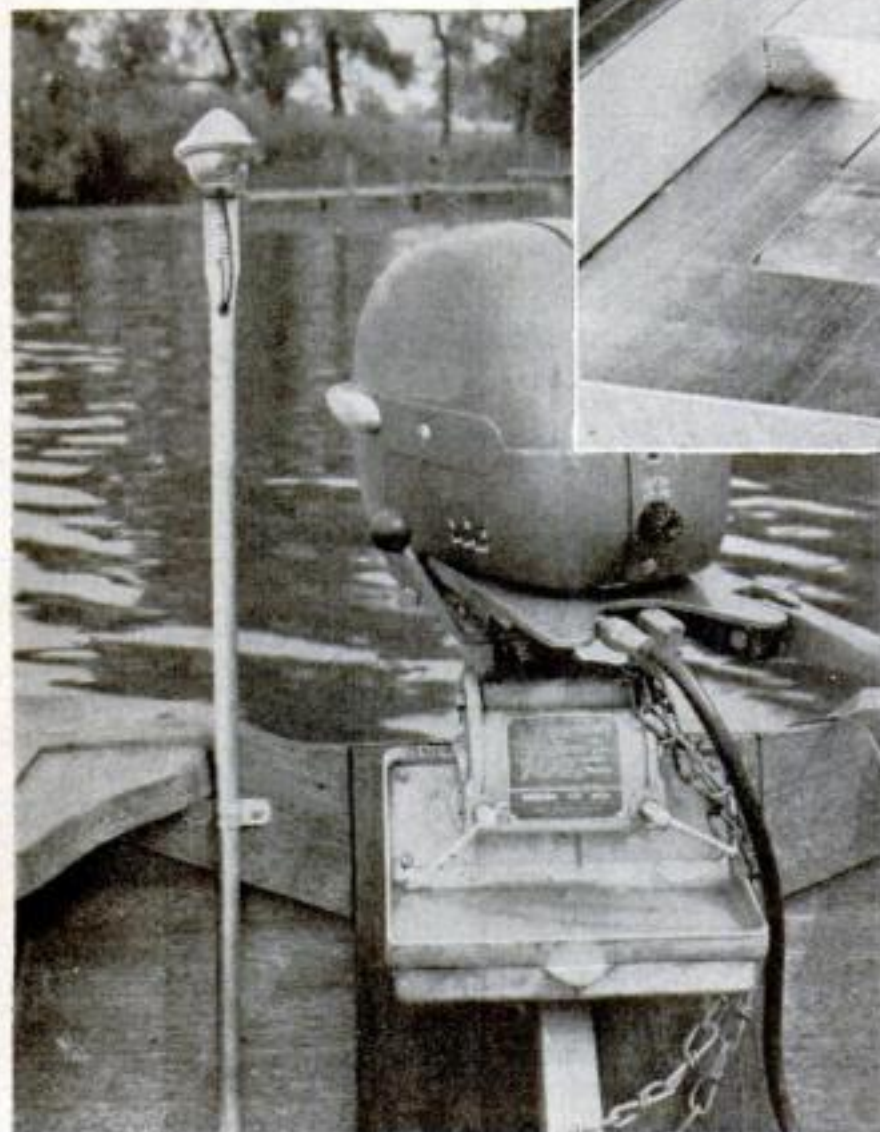
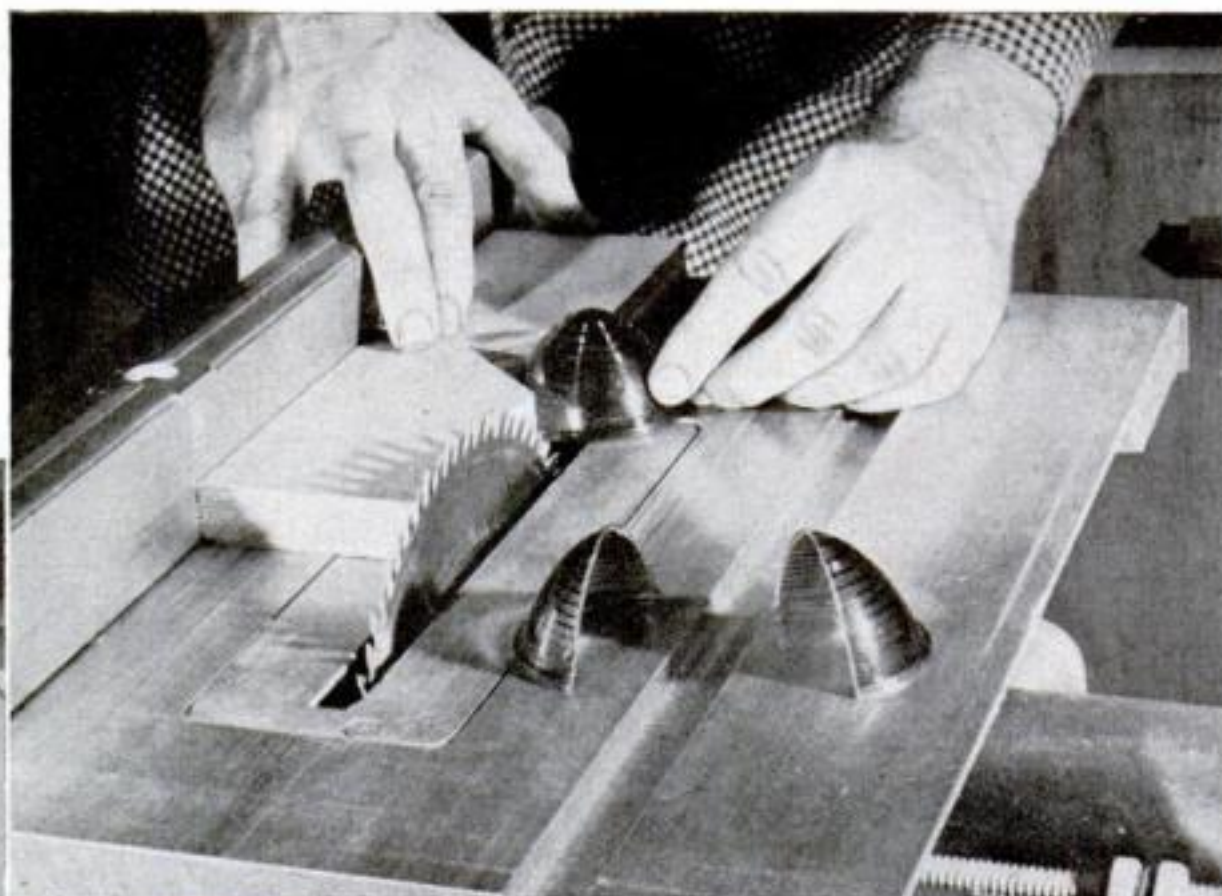
**Porter-Cable**  
*Quality Electric Tools*

PORTER-CABLE MACHINE COMPANY, 6159 N. Salina St., Syracuse 8, N.Y.

SEPTEMBER 1956 237



## Combination Green-Red Bow Light Is Made with Divided Lens



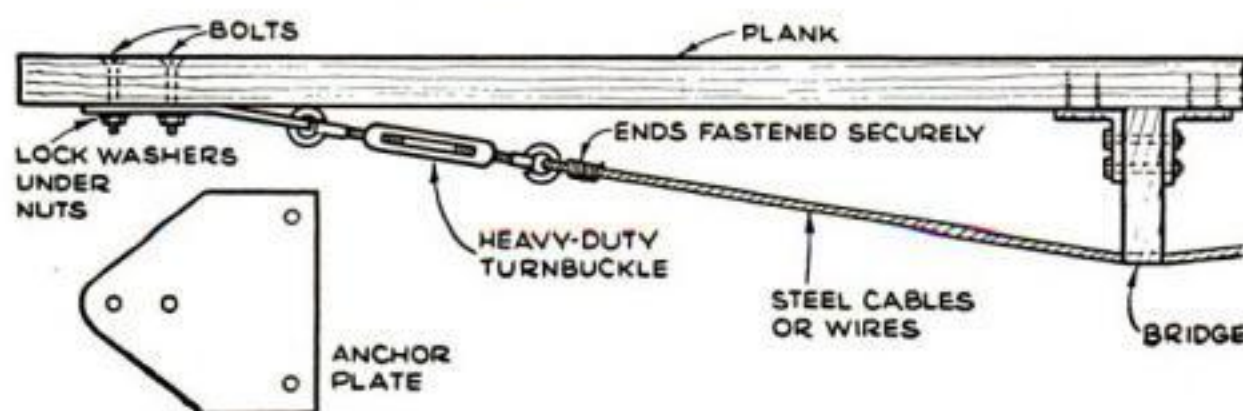
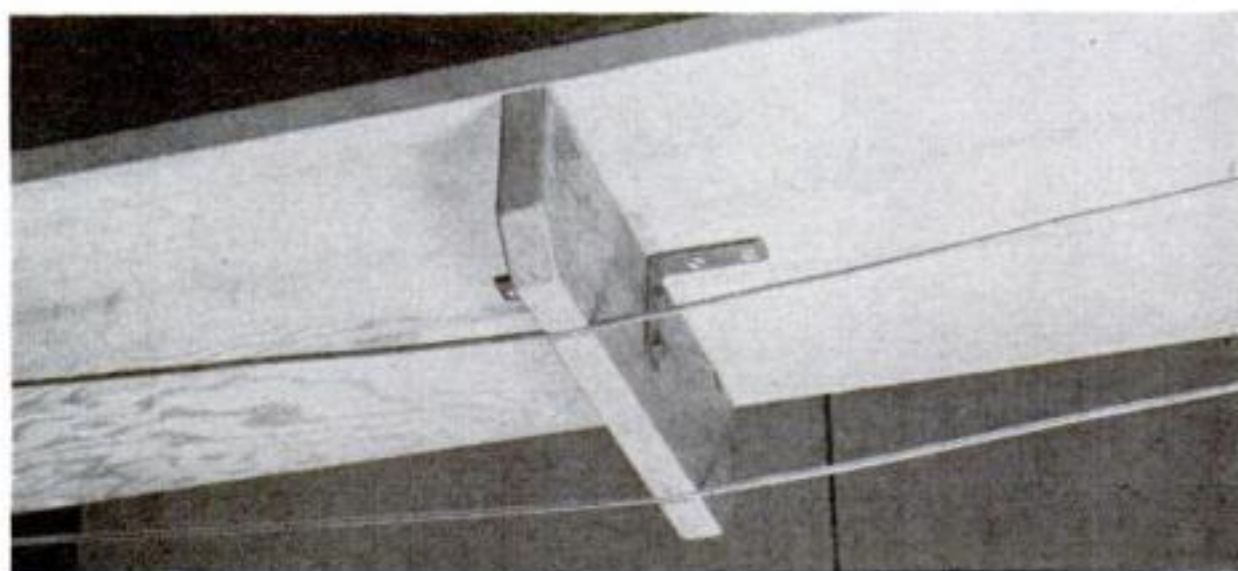
To MAKE a deck bow light for your outboard, saw green and red plastic lenses in half, using a V block, as above. Cement two halves together and mount in a standard light housing.

At the stern, use a light with a clear lens bolted to the flattened end of a piece of thinwall conduit. Drill a 5/16" hole near the top, insert a grommet, and run the wires down the tube. Wire for battery operation from one switch.—*L. E. Johnston, Madison, Wis.*

## Wire Brace on Underside Doubles Strength of Scaffold Board

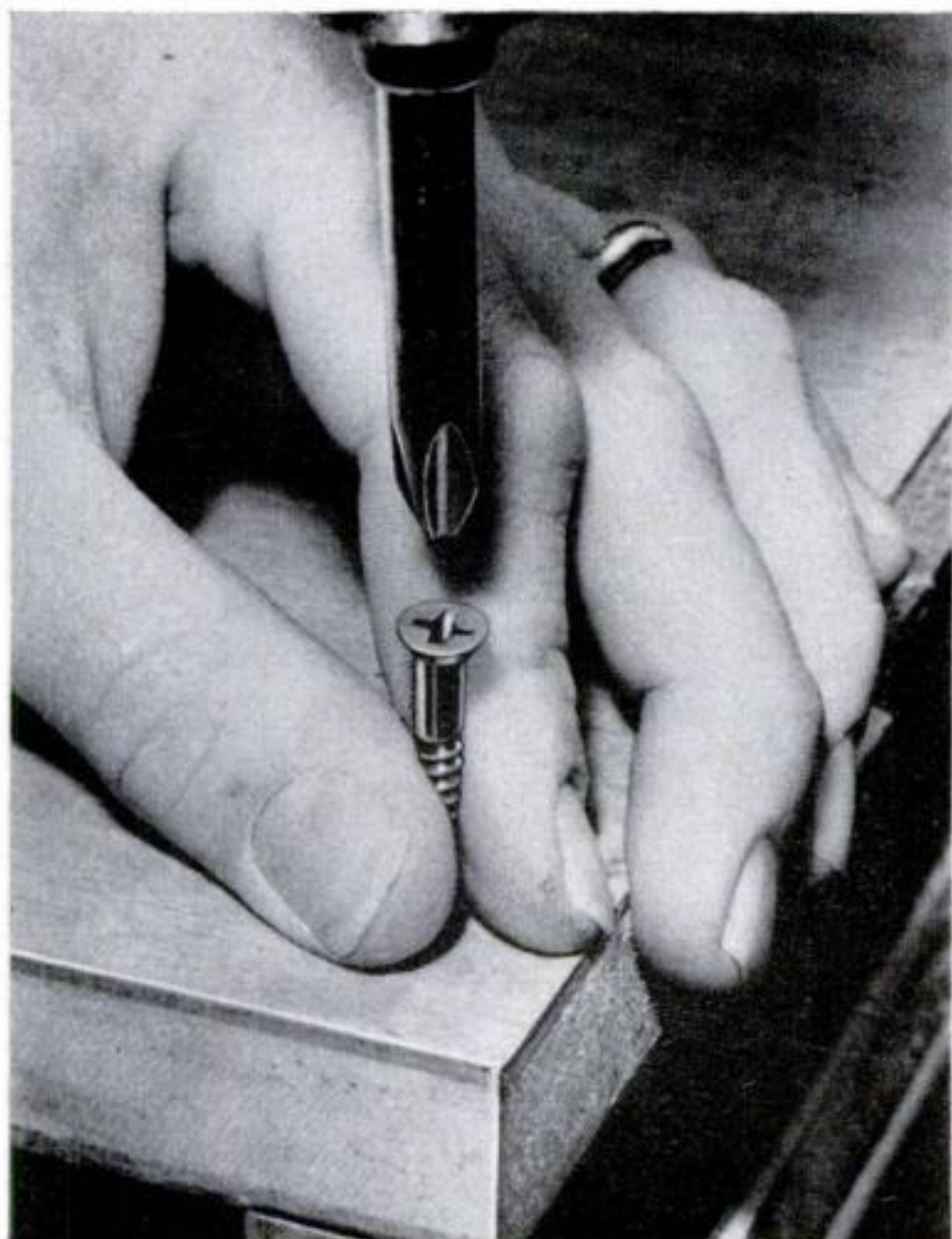
BRACING a 1" plank can give it the same strength, for scaffolding, that 2" stock has. It costs half as much, and is more readily reusable on other jobs.

With screwed and bolted angles, fasten a bridge to the center, as in the drawing, and bolt an anchor plate to each end. Then stretch two wires taut between the plates and across the bridge. Put a turnbuckle in one end of each wire, and turn it tight before use.





# IT'S YOUR PROJECT...GIVE IT THE BEST!



You're putting all you have into this job. A lot of planning, hours of time, painstaking care, maybe a dream or two . . . Now! Give it that final touch of permanence — the best Screw you can buy.

That's Southern.

Why not "favor yourself" by keeping a good supply of Southern Screws on hand? You'll save precious time, parking worries, trips to the store, and you'll save money when you buy 'em by the box.

Ask your dealer for Southern, Phillips or slotted, in any popular head style. Steel, brass, silicon bronze, aluminum, stainless steel. All standard plated finishes.

Write for the new colorful, 20-page booklet, "The Southern Story" — an interesting and educational account of Southern Screw's first ten years . . . Please use the convenient coupon below.



**Southern**  
SCREW COMPANY  
STATESVILLE • NORTH CAROLINA

Southern Screw Company  
Box 1360 — P-29  
Statesville, North Carolina

Please mail me your new, 20-page booklet about Southern Screw. I am sending you the name of my local Hardware Dealer from which I buy screws and bolts.

HARDWARE DEALER \_\_\_\_\_

HIS ADDRESS \_\_\_\_\_

MY NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

Sold Through Leading Wholesale Distributors • Warehouses: New York • Chicago • Dallas • Los Angeles

SEPTEMBER 1956 239



## Gus Defends a Woman Driver

[Continued from page 192]

"Drive just as you always do," Gus told Mrs. Whipple.

She picked up speed to a steady 50 miles an hour after they struck the smooth, open highway to Stanfield.

"Runs sweet," Gus commented.

"Relax," Mrs. Whipple told him. "It's 40 miles to Stanfield. It never cuts up until I'm at least halfway there."

"Probably won't tonight," Whipple grumbled. "You won't have the emergency brake on or ride the brake pedal."

Mrs. Whipple grimaced but didn't reply. She just drove. There was no sound save the hum of the motor, the swish of tires on pavement. They were fully 25 miles out before Gus suddenly jerked erect, his keen ear detecting a change.

"It's started," Mrs. Whipple said delightedly. "From here on we'll have hot water and less power."

"What!" Whipple exclaimed from the back seat. "In this car? Impossible. Watch her, Gus—she may be riding the brakes on the sly."

GUS looked down at trim ankles and up to check the instrument panel. Yes, the heat-gauge needle had moved up slightly. There seemed to be a little less power.

"It's got to be her driving," Whipple protested, feeling the power loss now himself. "I drive this car every day. I tell you, Gus . . ."

"It isn't her driving," Gus said flatly. "She drives well. Now with the same car and equally efficient drivers, we've got to look beyond these identical factors. We've got to look at variable factors."

"Equally efficient drivers!" Whipple exclaimed in protest.

"Get the chip off your shoulder, Henry," Gus said, "and let's get our heads together on this. What difference is there in your driving, Henry—distance, speed, route, load?"

"Same load," Whipple said. "One person. I drive farther, maybe faster. I drive during the day, of course, and she drives only at night."

"I know about where you go in calling on the various dairies," Gus said. "I know most of them. But I can't see why night and day, or route, should make any difference."

Gus was thinking about Henry, driving around, selling equipment for contented cows, when the headlights lit up a white sign, which indicated a road turning from the highway.

"Pull up a minute," he said to Mrs. Whipple, and when she had stopped he got out, lifted the hood, flashed his light on the motor and got back in.

"Take the branch road," he told her.

"Why?" she asked. "It isn't paved."

"Neither are the roads your husband drives on," Gus told her. "It might make a difference. Roll it. Don't worry about chuck holes. We're grabbing at straws, ma'am."

MRS. WHIPPLE looked into Gus's face searchingly—and she rolled it. As the car bounded over the rugged country road, Gus felt it gradually regain its lost power. The heat gauge, which had stood at 190, dropped slowly to a normal 180.

"Ah," Gus breathed. "Pull up at the first turnout."

When they had stopped, Gus got out, took a piece of wire from his kit, worked under the hood a few moments and got back in the car.

"It's all right now," he said. "Your heat valve was causing the trouble after all. A defective bimetallic spring."

"Impossible!" Whipple exclaimed. "How could anything possibly cause a car to act up at night and not during the day?"

"Impossible?" Gus said, smiling. "That's what I thought until I satisfied myself that your wife was a good driver and began to think of the variables. This heat valve is a tricky little gadget, installed in the manifold. A counterweight holds a valve closed on a cold engine, so that the mixture from the car-

[Continued on page 242]



# DISSTON

**D-23 Lightweight, Straight-back**

## HAND SAW

**CUTS SMOOTHLY!**

**ONLY  
\$895**

**CUTS FOR A  
LIFETIME!**



**CUTS CLEANLY!**

*10-to 12-pt. Disstons recommended for smoothest cuts in plywood and other well-seasoned woods*

When you're cutting plywood and want a beautifully smooth finished edge, you've got to use a saw that's made for finished work.

That's a 10-, 11-, or 12-point Disston. These fine-toothed saws often make the difference between fine workmanship and an ordinary job. They are specifically designed to be used for finishing.

So if you've been trying to cut plywood or other well-seasoned woods with an 8-point saw, ask at your hardware or tool store for a Disston D-23 in 10-, 11-, or 12-point. You'll get a saw of fine tool steel, with perfectly tempered and double taper ground blade . . . a saw you'll use and treasure for a lifetime.

### CARLSON STEEL TAPE RULES AND TAPES



**WHITE CHIEF**  
(6 ft.) \$1.80

**BIG CHIEF**  
(12 ft.) \$3.50

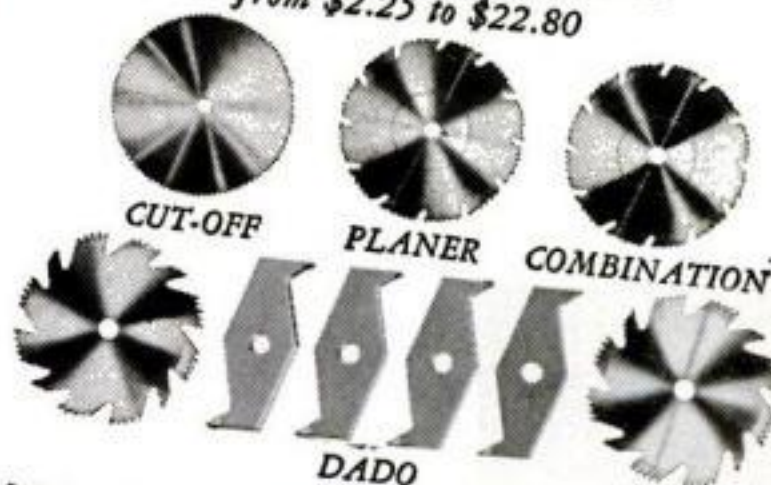
**STAR CHIEF**  
(50 ft.) \$5.00

Finest quality long tapes and pocket-size rules for every purpose. From 6 feet to 100 feet. Accurate, easy-to-read. Double graduations, feet and inches. Stiff, rigid, easily-changed blades. Easy-action swing tips.

**FREE ILLUSTRATED BOOKLET! 64-**  
page Disston Saw, Tool & File Manual.  
Tells how to choose and use tools;  
how to care for them. Helpful hints  
on wood working, metal working  
and selection of materials. Write  
today for your free copy.

### DISSTON DE LUXE CIRCULAR SAWS AND DADOS

from \$2.25 to \$22.80



Make cutting easy and accurate. Made of famous Disston steel. High finish; keen teeth; accurate fitting. Special styles to fit all makes of bench and portable electric hand saws.

**ASK YOUR HARDWAREMAN  
TO SHOW YOU THESE FINE DISSTON TOOLS**

# DISSTON

Henry DISSTON DIVISION • H. K. PORTER COMPANY, INC.  
910 Tacony, Philadelphia 35, Pa.





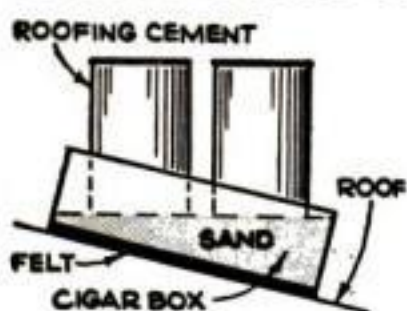


## Blocks Raise Child's Seat

WHEN a youngster outgrows a high chair, shim up a metal kitchen chair with wood blocks like this. Unscrew the seat and screw two one-by-two pieces under it. Put the original screws back through the tubing into the blocks.



## Sand Levels Roofing Cement



WHILE repairing a pitched roof, a farmer I know places open cans of roofing cement in a cigar box half-filled with sand to keep them level. Two holes in the lid receive the cans. Felt cemented to the box bottom keeps it from sliding.

—William B. Eagan, *Flouids Knohs, Ind.*

## Gus Defends a Woman Driver

[Continued from page 240]

buretor will be heated quickly by exhaust gases. A bimetallic spring opens this valve when it warms up. If the valve doesn't open after warm-up, you get overheating, restriction of exhaust gases, and inefficiency from the too-hot fuel mixture. It reduces engine power and causes poor gas mileage. I thought of this right away in the garage, but the valve seemed all right then, open as it should be on a warm engine."

"But how about this day-and-night business?" Whipple spluttered.

"Remember," Gus said, "that your trouble is a faulty spring that is supposed to open this valve. The engine is cold when you start in the mornings, and the valve is closed by the counterweight. When your motor warmed, the spring, being defective, wouldn't open the valve, but by that time you would have hit country chuck-hole roads, and it would be bounced open. Mrs. Whipple, driving only on pavement, didn't have that kind of luck."

"You're only guessing, Gus," Whipple declared. "How do you know that it doesn't bounce open for Frieda and does for me?"

"On this one," Gus chuckled, "I had to be sure. That's what I got out for, back there. It was closed on a warm engine before we left the highway, and it was open when I looked at it here. I tied it open with wire. Bring it in tomorrow and I'll make a permanent repair."

MR. and Mrs. Whipple looked at each other. Slowly they began to smile, then broke into laughter.

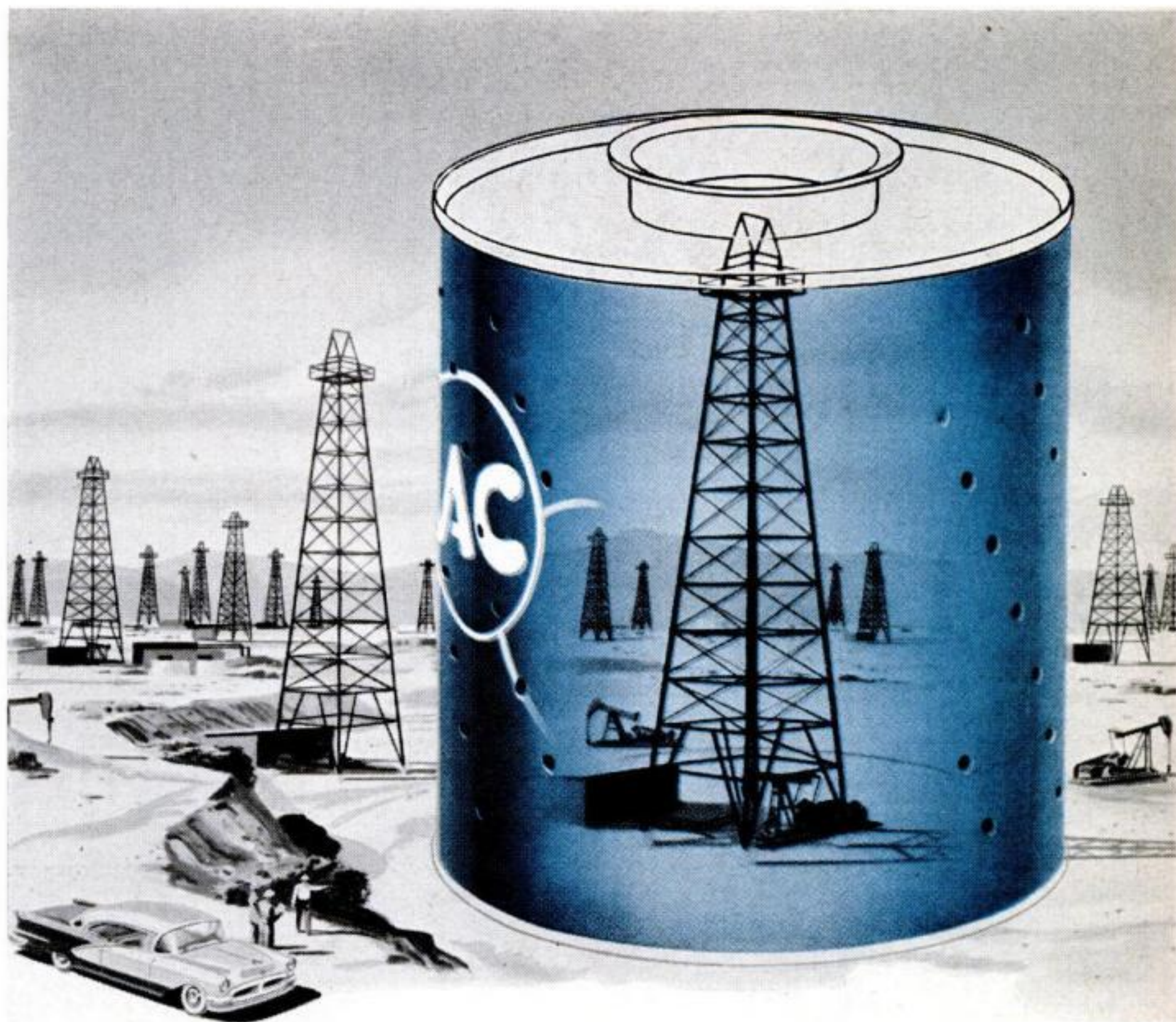
Whipple roared, waving his glasses and wiping laughter tears from his eyes, "How could a cow be contented with me in the barn? Oh, my sacred aunt!"

The Whipples seemed so delighted with each other that Whipple didn't move to change cars when Stan Hicks drove up. Whipple, for this evening at least, seemed quite content to wait for his wife in Stanfield.

END

**NEXT MONTH: Gus saves the livestock.**





**144,000 quarts of oil gush through your  
AC OIL FILTER every 5,000 miles!**

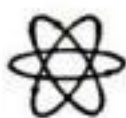
If the filter in your car is a full-flow AC Oil Filter, it cleans all of the oil in the crankcase every 30 seconds at normal driving speeds. It takes an outstanding filter to keep on cleaning out harmful dust, dirt, grit, carbon and bits of metal for a full 5,000 miles. AC Oil Filters do this—capturing impurities and abrasives, even when they're microscopic in size.

There are many square feet of filtering area packed into an AC Oil Filter, and they're packed so precisely parallel that the filtered-out sludge deposits evenly over the entire area. That's why an AC Oil Filter works at a three-gallon-a-minute pace and maintains its full filtering efficiency throughout the recommended 5,000-mile period. Your AC Oil Filter doesn't remove an ounce of useful detergent from your oil, either. So—always say AC when you change your filter.

Watch **BIG TOWN** on NBC-TV



AC SPARK PLUG



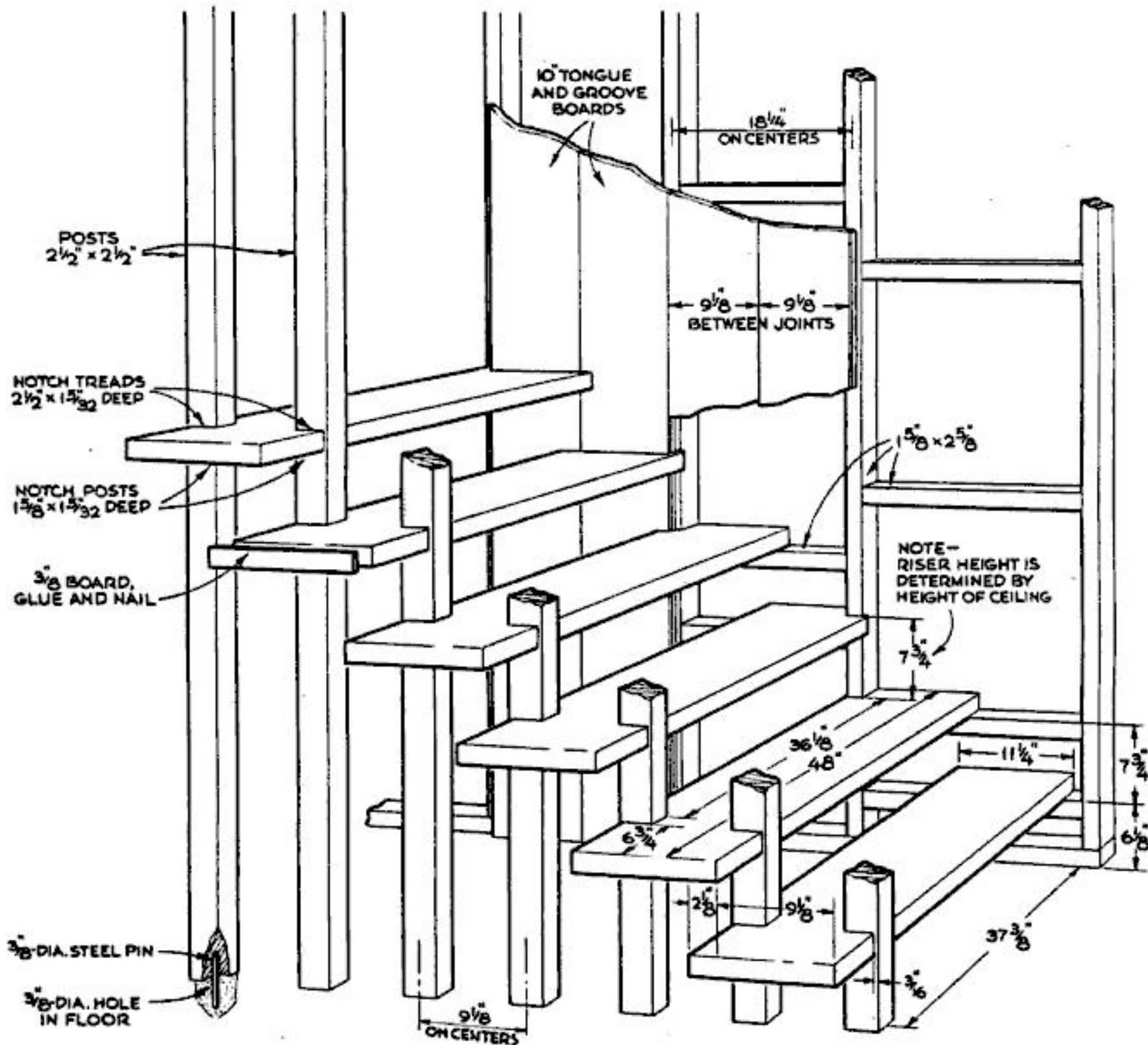
THE ELECTRONICS DIVISION OF GENERAL MOTORS

SEPTEMBER 1956 **243**



## Stairway for Moderns

[Continued from page 100]



furnace, tubs and a workbench the other.

Eventually, rather than attempt to dress up the old stairway, Ray decided to scrap it. After making several rough sketches, he consulted an architect, a couple of builders and his local lumber-building materials dealer.

With this help, he evolved a stairway that uses two-by-twelves for treads and three-by-threes for a line of posts into which the treads are notched at one end. The dividing-wall framing supports the other ends of the treads.

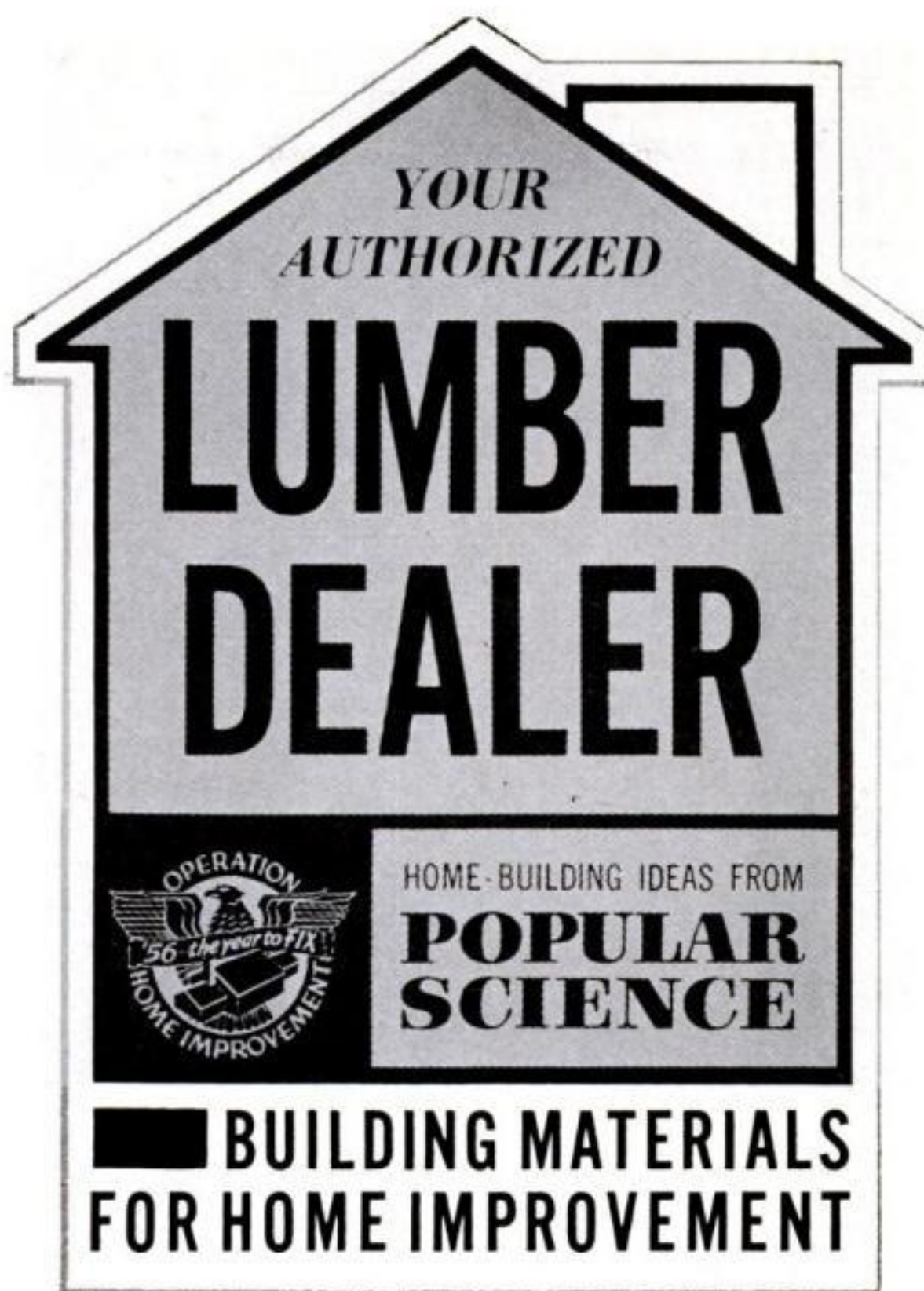
**Easier to build.** The interlocking design does away completely with notched stringers. This and other features caused the carpenter who put up the new stairway to describe it as easier to build than the conventional type.

Rough three-by-threes were chosen for the posts after ordinary two-by-fours had been considered and discarded as of too poor quality for the job. The lumberyard cut and dressed the posts to a finished dimension of  $2\frac{1}{2}$ " by  $2\frac{1}{2}$ " from three-by-ten Douglas fir floor beams. Kiln-dried Douglas fir was chosen for the 4'-long treads. Eleven treads were required, 12 posts. Treads and posts cost a total of \$82.40. To have a carpenter build the stairway, you could expect to pay a minimum of \$450 for labor and materials, including those for the wall.

**Using free space.** To make use of the space behind and under the stairway, the Piochs anchored a children's luncheon bar to the posts and placed shelves in

[Continued on page 246]





Look for this insignia on your lumber dealer's window! It stands for friendly service—top brands and worthwhile values. Every store displaying this emblem is a “one-stop do-it-yourself headquarters”—carrying building materials, tools, and equipment for all home modernization and improvement projects.

Get acquainted with your local lumber dealer! He's now featuring BIG values

during the NRLDA Annual Fall Home Improvement Program. And ask him for your copy of the special home improvement booklet. It's loaded with valuable do-it-yourself ideas, hints and projects straight from the editors of POPULAR SCIENCE.

*Remember the above insignia. You will find that it represents a friendly place with famous brands, service and top values for you to “Make Your Home A Showplace”.*

## NRLDA

NATIONAL RETAIL LUMBER DEALERS ASSOCIATION

18th & M Streets, N.W., Washington 6, D.C.



## Stairway for Moderns

[Continued from page 244]

that corner of the game room. A door at the foot of the stairway leads through the paneled dividing wall into the utilities section of the basement.

The stairway has a run of 8' 5"—the basement-floor distance from the front edge of the bottom tread to a plumb line dropped from the riser at the first-floor landing.

A key dimension is 9 $\frac{1}{8}$ ". This is the effective tread width, the distance from the nose of one tread back to the point where the tread above overhangs. The posts also are placed on 9 $\frac{1}{8}$ " centers. And the measurement from joint to joint of the 10" tongue-and-groove paneling on the wall is 9 $\frac{1}{8}$ ".

For the 11-step stairway, the rise—the distance from the top surface of one step to the top surface of the one above or below—worked out to 7 $\frac{1}{4}$ ".

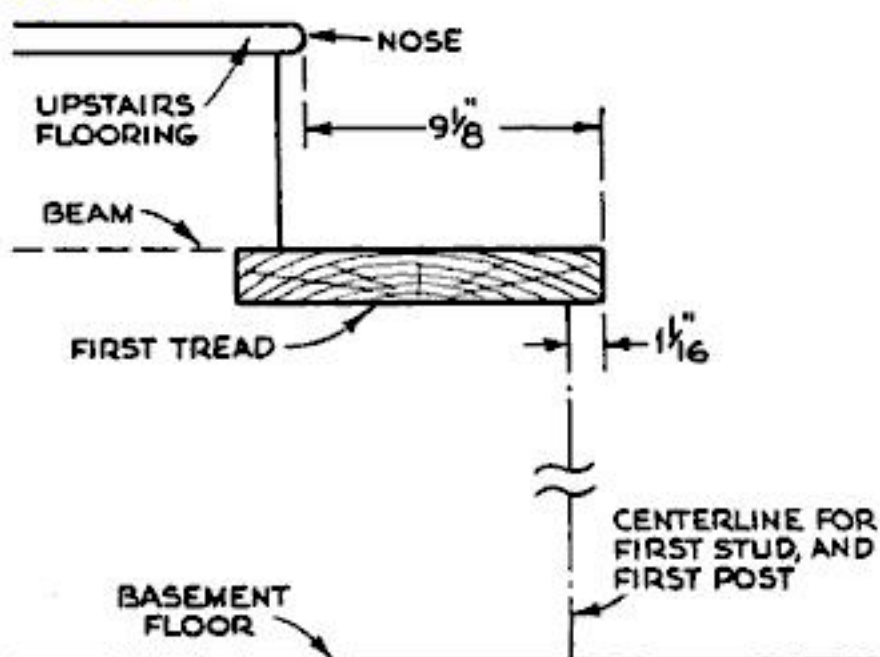
In new construction, the handsome, modern appearance of the stairway makes it a candidate for the living room as well as the basement. In the living room, the space behind and under the steps could be devoted to house plants or an aquarium.

**It's precut.** The man who wants to build it himself, perhaps in a basement, will find an advantage in the fact that the dimensions permit cutting and fitting the new parts before the old steps are removed.

Here's how you build the stairway:

To lay it out, drop a plumb line from the nosing of the first-floor flooring at the head of the existing stairs. From this line, measure out 9 $\frac{1}{8}$ " along the lower edge of the joist adjoining the stairs. (This point eventually will be the nose edge of the first step of the new stairway, this tread being notched into the joists as necessary to keep the rise constant between steps.)

From the 9 $\frac{1}{8}$ " point measure back 1 $\frac{1}{16}$ " and drop a plumb line to the basement floor as shown in the accompanying sketch above. This line becomes the centerline for one of the studs in the dividing wall—and on the opposite side



of the stairway for the first three-by-three supporting post.

**Framing the wall.** The dividing wall is framed with two-by-threes. Locate the top plate flush with the inside edge of the joist that bounds one side of the stair well. Anchor the bottom plate to the floor with cement-penetrating nails.

Center one of the studs on the plumb line already established, then position four others along the base plate on 18 $\frac{1}{4}$ " centers. Beyond these, place a fifth stud on a 22" center. Since this stud will support the door jamb, the extra spacing will keep the door trim clear of the bottom tread of the new stairway.

When all studs are in, place horizontal stretchers between them to support the treads. Two stretchers go between each successive pair of studs, one above the other at the proper distance to give the desired rise to each step.

**Riser height.** To determine your rise, divide the first-floor to basement-floor distance by 12—the number of riser spaces in an 11-step stairway. If the resulting figure is much above 8", your stairway will be too steep for safety. In that case, add an extra three-by-three supporting post for a twelfth step—and a correspondingly lesser rise.


Place the first tread-supporting stretcher between the pair of studs at the foot of the stairway. In doing this, remember that the actual thickness of the treads is 1 $\frac{1}{16}$ ". Locate the first stretcher at a height which, with 1 $\frac{1}{16}$ " added, will

[Continued on page 248]




# DELTA HOME WORKSHOP

## Special!



GET THIS FAMOUS DELTA  
QUALITY SAW-JOINTER  
**now...**

... AND RECEIVE THIS  
\$16.95 DELTA SABER SAW  
ATTACHMENT  
absolutely  
**free**  
of extra charge!



### Save Real Money On Genuine DELTA Quality!

**PAY AS LITTLE AS \$7.10** a month for your DELTA Quality Saw-Jointer—most basic, most popular of all workshop tools. Genuine DELTA 8" Tilting Arbor Saw and 4" Jointer are mounted on one stand to *save you space*, powered by one motor to *save you money*.

**PAY NOTHING EXTRA FOR DELTA** Saber Saw attachment! In just seconds it converts your DELTA 8" Tilting Arbor Saw into a versatile machine for curve cutting, sanding, filing. And

it's absolutely **FREE** of extra charge if you buy your DELTA Saw-Jointer *now*!

**TAKE UP TO 24 MONTHS TO PAY** on terms to suit you! Get your Delta Saw-Jointer and **FREE** Saber Saw attachment *now* and enjoy years of fun and profit! Visit your Delta Dealer (listed under "TOOLS" in the Yellow Pages of your telephone book), or leading hardware and department stores—*today*!



Get Free Catalog, Name of Nearest Delta Dealer



another product by  
**ROCKWELL**



Delta Power Tool Div., Rockwell Manufacturing Co.  
504J N. Lexington Ave., Pittsburgh 8, Pa.

- ☐ Please send name of my nearest Delta Dealer.  
☐ Please send Delta Homecraft Catalog.



Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ County \_\_\_\_\_ State \_\_\_\_\_



RED TOP\* INSULATING WOOL  
with the

# Silver Shield



## NEW

way to cut  
air conditioning costs!

RED TOP wool with the "Silver Shield" (real aluminum foil) can save you big money on air conditioning. Properly installed in ceilings or attic roof rafters, it turns back up to 95% of sun-generated heat rays that hit its surface, because it's wrapped in reflective aluminum. The aluminum is perforated on the outer (breather) side; solid on the inner side to serve as an effective vapor barrier.

Hundreds of dollars can be saved on original central air conditioning equipment, since a smaller unit will do the job. Savings on operating expense during the first year alone often equal one-half the cost of your insulating job. Pre-formed batts and blankets are easy to install; save winter fuel too. For full details see your local building material dealer, or write Dept. PS-63, 300 W. Adams St., Chicago 6, Ill.



UNITED  
STATES  
GYPSUM

the greatest name in building



\*T.M. Reg. U.S. Pat. Off.  
© 1956 United States Gypsum Co.

## Stairway for Moderns

[Continued from page 246]

bring the top surface of the first step  $7\frac{1}{4}$ " from the floor—or whatever you have figured the necessary rise to be.

The second stretcher also goes between the first two studs, with its upper edge  $7\frac{1}{4}$ " above the top edge of the first stretcher. Then move over and place two stretchers between the second and third studs, two more between the third and fourth, and so on up the line. Secure these stretchers by toe-nailing and by driving one or more hefty nails through the uprights into the end of each.

**The posts.** Anchor the three-by-three posts to the floor by drilling centered holes in the bottom of each for  $\frac{3}{8}$ " steel pins 3" long. Let the pins project an inch or so and thrust them into holes drilled in the concrete floor.

Drill these floor holes in a line  $37\frac{1}{2}$ " from the near edge of the wall framing. Locate the first one by running a line at right angles from the plumb line used to establish the center of the first wall stud. Then spot holes for 10 other posts, each on a  $9\frac{1}{8}$ " center. (A twelfth post was placed under the boxed-in longitudinal beam in the Pioch stairway.)

The posts in the Pioch stairway lined up so that, when they were plumbed, their tops rested against the side of a joist on the basement ceiling. In the final assembly, therefore, it was possible to toenail each post to the beam after a little shimming here and there. If yours cannot be made to line up this way, a two-by-four plate on the ceiling will provide a way to secure the tops.

**The treads.** Now cut notches in the treads to interlock with others in the posts. Locate these on a center 8" from one end of each 48"-long tread, cutting out a notch  $2\frac{1}{2}$ " wide and  $1\frac{5}{8}$ " deep on each side. A corner notch must also be cut at the wall end of each tread so it will fit around the corresponding stud.

With the posts temporarily in place, mark them for notching by using the same dimensions you used in locating the tread-supporting stretchers in the wall framing. Mark each post for the lower



### **Stairway for Moderns**

edge of the tread. Then, as a double check, rest the end of a long level on each wall stretcher in turn, bring the other end against a corresponding post, and make or check a mark at its lower edge when a co-worker reads the bubble at the absolute horizontal. Lacking a level this long, you can rest a shorter one on a rigid straightedge.

Now take down the posts and cut the notches, making these  $1\frac{1}{2}$ " wide and the same depth as these in the treads,  $1\frac{5}{8}$ ". The old stairway can be removed at this point, for the new one is ready for final placement and assembly.

**Assembly.** Beginning at the top, install the first tread down from the landing. This alone of all the treads is not supported by the posts. Cut it off at the post line and notch either it or the joists so that the rise to the flooring is equal to the rise in the rest of the stairway. Nail it to the beams and, for additional strength, support it with a pair of heavy metal brackets. Fit in a riser board to close off the space between the beams.

The first post can now go into place, then the first notched tread, followed by the second post. Plumb each post as you continue down the line and see that each one is square with the treads.

Toenail the top of the posts to the beam and the treads to the posts. Also nail the wall end of the treads to the horizontal stretchers. To counteract warping, nail in tie-down stretchers against the top of the treads in the wall framing. Finishing strips of  $\frac{3}{4}$ "-thick material glued and nailed to the free tread ends also help combat warping.

As part of the overall design of the stairway, the joints in the wall paneling can be placed so that they align with the posts. Provide for this by ripping the first panel board at the doorway so that the first joint aligns with the post at the foot of the stairway. Cut the paneling to butt against the top and bottom of each tread. Each board will need one notch so that it can slip over the tread above or below the one against which it butts.

END

SEPTEMBER 1956 249

natural  
wood  
beauty!

plus all the  
advantages of

## **SHEETROCK\***

the fireproof gypsum wallboard

Build or remodel with Woodgrained SHEETROCK. Lend distinction to basement or attic rooms, libraries or dens with faithful photographic reproductions of the finest pine, mahogany or walnut wood paneling. Woodgrain SHEETROCK is strong, durable, crack-resistant.

You can *apply it yourself!*

Just nail easy-to-cut, easy-to-fit panels to framing members with matching-color nails. Ask your U. S. G. building materials dealer about it; or write for a descriptive folder.

Address Dept. PS-64, 300 W. Adams St., Chicago 6. Also made in Canada by Canadian Gypsum Company, Ltd., Toronto and Montreal.

\*T. M. Reg. U. S. Pat. Off.

U.S.  
G.

UNITED  
STATES  
GYPSUM



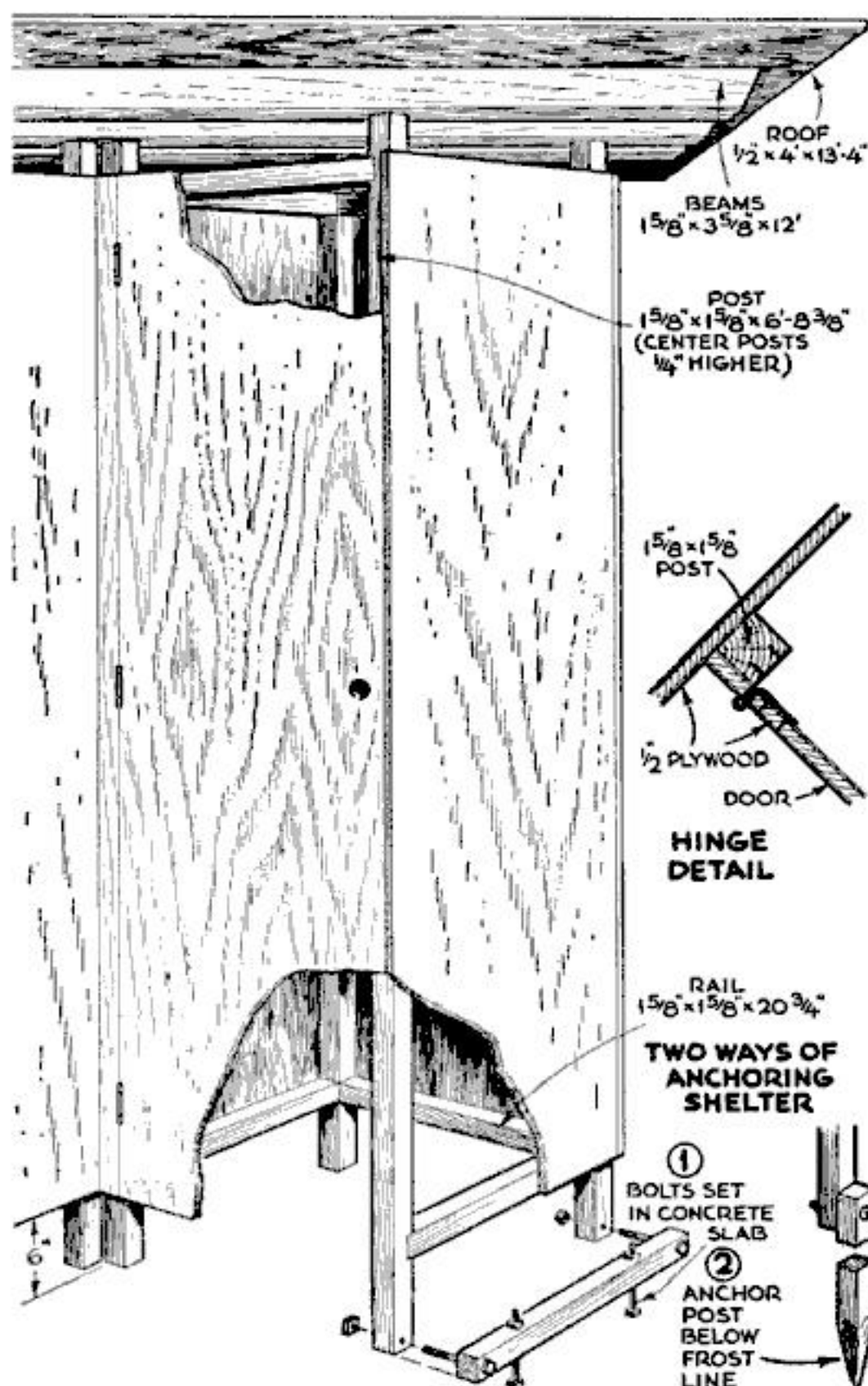
**UNITED STATES GYPSUM**

**The Greatest Name in Building**



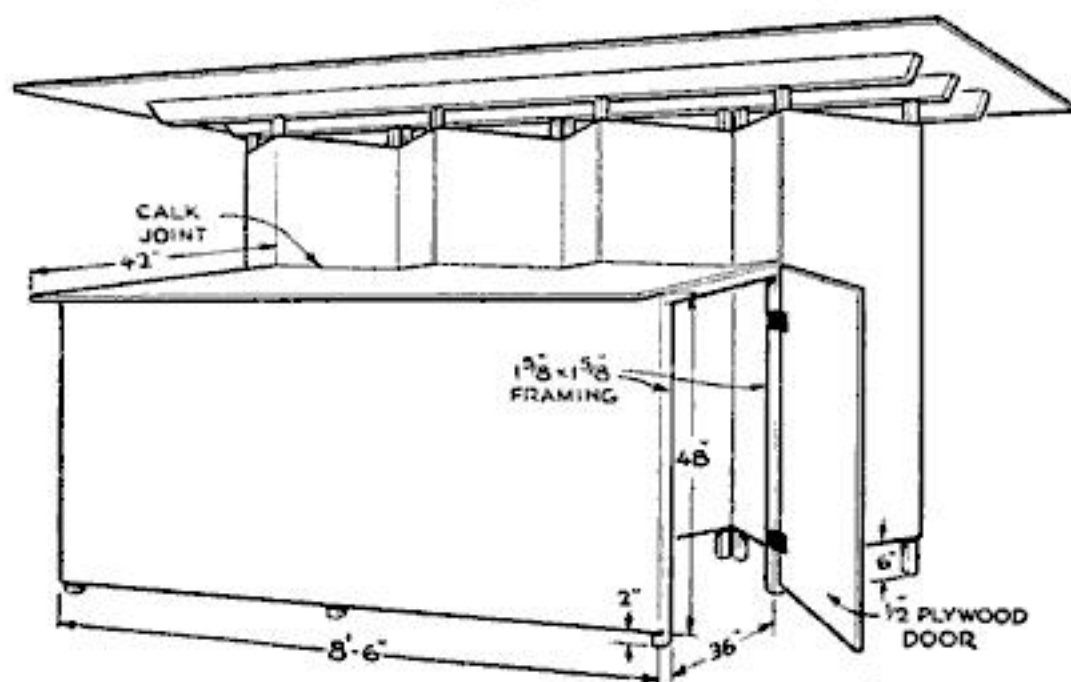
## Show Place Garden Shelter

[Continued from page 106]



**TYPICAL CONSTRUCTION DETAILS** for main shelter are seen above. Anchor it to ground in one of two ways shown.

**OPTIONAL LEAN-TO** below, built behind main shelter when latter has all doors at front, will house wheelbarrow and mower. Use 1/2" exterior plywood on two-by-two frame.



### WHAT YOU NEED TO MAKE A SHELTER

- 8 pc. 1/2" x 4' x 6' exterior plywood (walls)
- 1 pc. 1/2" x 4' x 14' OR
- 2 pc. 1/2" x 4' x 7' exterior plywood (roof)
- 1 pc. 3/4" x 4' x 8' exterior plywood (shelves)
- 3 pc. 2" x 4"s-12' long (roof beams)
- 8 pc. 2" x 2"s-14' long (posts)
- 6 pc. 2" x 2"s-8' long (rails)
- 6 pairs of hinges, 4 friction catches, galvanized nails, glue and paint as desired.

them so that two-by-two wood anchor strips can be attached both to the bolts and the legs of the shelter. Anchor the shelter in this way between not less than four pairs of legs.

For greatest strength set the two-by-two rails into dadoes cut 3/8" deep in the corner posts. Assemble with glue and galvanized nails. Rails are required only at top and bottom of the two sides and back panel of each compartment. When the framework is complete, nail on the panels.

Toenail the posts to the roof beams and for wind security screw a mending plate in place across each joint.

A slight slope from side to side in the roof panel will give good rain drainage. Provide for this by making the centerline of eight posts 1/4" longer than those at the outside, or by nailing a strip of 1/4" plywood on top of the middle roof beam.

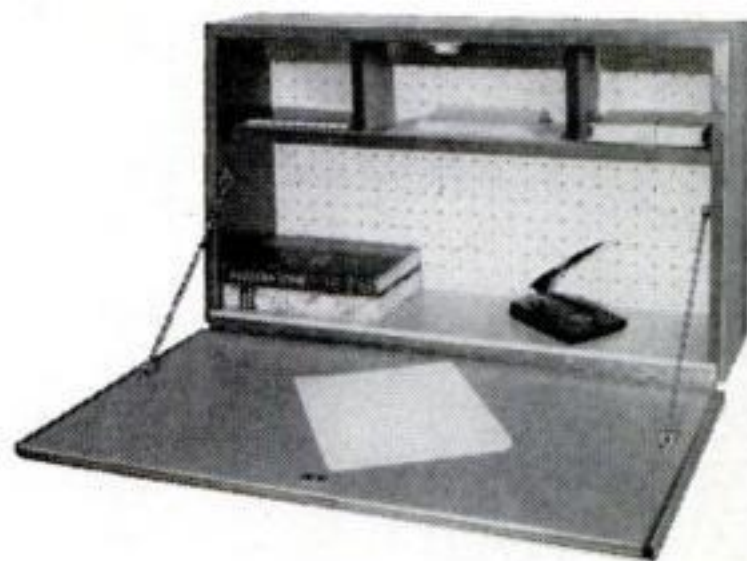
Bow the roof panel downward, nailing it to the beams. If plywood 14' long is not available, use two 4'-by-7' panels with a rabbeted joint at the center. Seal the joint with calking compound.

Although unsupported plywood panels can be used as the doors, you can get the jump on any warping tendency by attaching a strengthening frame of one-by-twos inside each one. **END**



# AMF DeWalt® POWER SHOP

## makes a wall desk



## in one evening

does everything — easier, finer, safer



Simply draw saw across boards to cut to size. See your mark and your cut, **A**. Turn motor and taper-rip both side boards at once, **B**. Mount dado head and groove where required, **C**. Shaper head molds desk edge, **D**. And you have a smart wall desk, ready to erect!

Your big-capacity, easy-to-use DeWalt is 12 professional power tools in one — a *complete home workshop*. And it builds into workbench — uses 75% less floor space than ordinary table saws! Arm raises, lowers, swings 360°... motor and saw ride on arm, rotate 360°, tilt past 90°. DeWalt saws, sands, routs, shapes, grinds, drills, dados, surfaces, even cuts aluminum... converts to a lathe, saber saw, belt sander...

*pays for itself many times over!*

MB-F above —  $\frac{3}{4}$  hp DeWalt-built motor, U.L. & C.S.A. Approved, 9" blade cuts 2½" deep, rips 24" wide... *just \$239 delivered*. Professional size GW-I — 1½ hp motor, 10" blade cuts 3" deep, rips 26" wide... \$395.

**As little as \$2.50 a week** after 10% down on DeWalt's Easi-Budget Payment Plan.



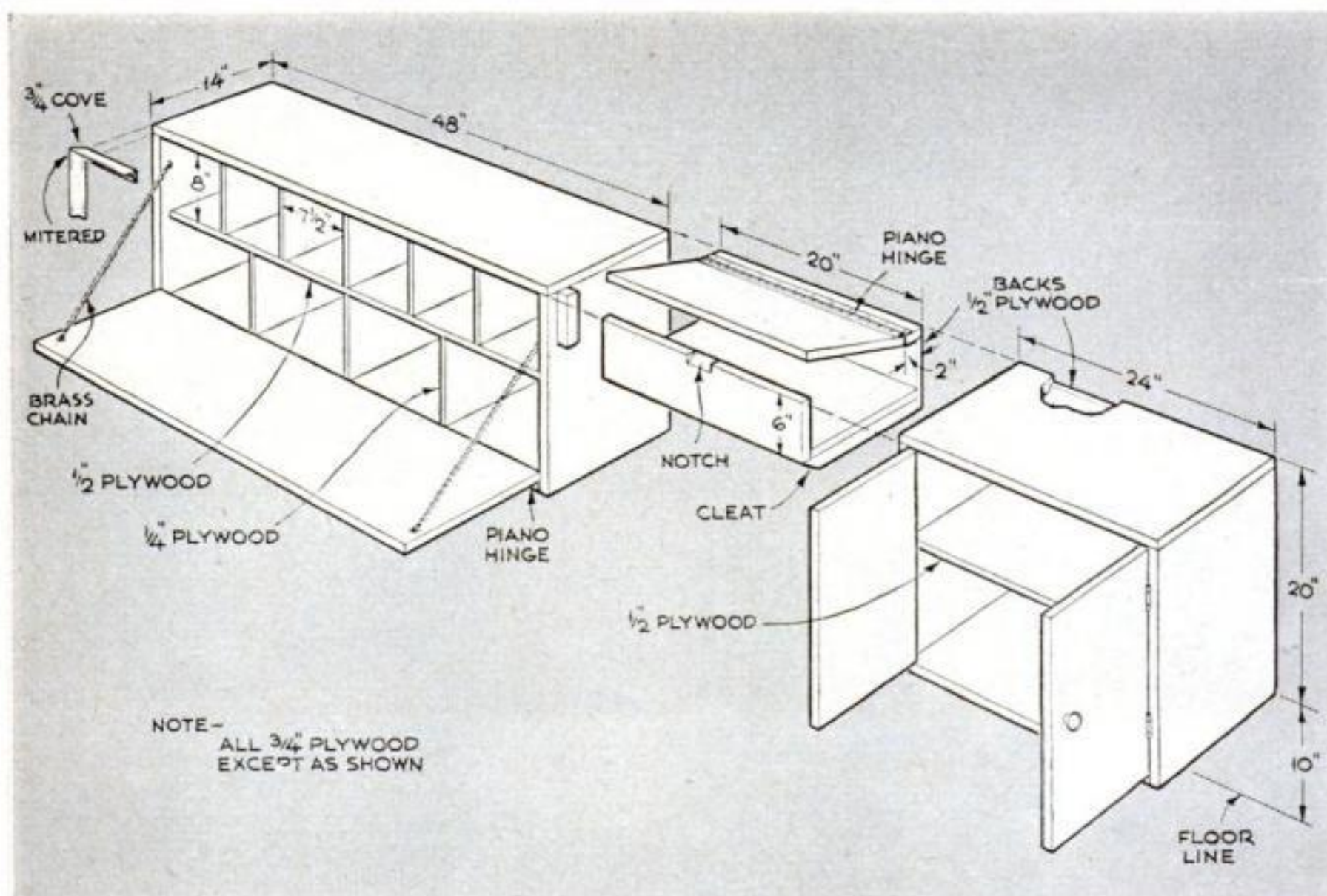
DeWalt Inc., Dept. PS-56-9, Lancaster, Pa.  
Subsidiary of AMERICAN MACHINE & FOUNDRY COMPANY

- ☐ Send FREE 20-PAGE DEWALT BOOKLET and name of nearest dealer.  
☐ Send FREE STEP-BY-STEP PLANS on Wall Desk.

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_







The hang-on-the-wall vanity dresser consists of three units that go together as shown above.

### Show Place Vanity Dresser

[Continued from page 107]

the back panels of  $\frac{1}{2}$ " plywood. Glue and nail  $\frac{3}{4}$ " cove or other suitable molding to the exposed edges of the  $\frac{3}{4}$ " plywood, mitering the molding at the corners.

Drill two vertical lines of holes inside each end of the 24" cabinet. Use pegs in these to support one or more adjustable shelves. Dado the ends of the long cab-

inet for the shelf. Also dado the shelf and cabinet top and bottom for the dividers. Stop all shelves and dividers  $\frac{3}{4}$ " short of the front to allow the doors to close.

After mounting the two end cabinets, cut the vanity parts and install. Attach the mirror with contact cement, or with molding nailed in place. END

### Show Place Furniture

[Continued from page 120]

ness. For the longer furniture, order mattress-type foam rubber cut to size.

The upholstery is your choice. The builders of the original furniture, with pets and children in mind, chose a fabric-backed plastic material that can be wiped clean.

**The finish.** Place fabric over the hardwood framing below the seat cushions—or leave it exposed and apply a natural finish.

For a finish on the visible wood parts—the frame, the legs and the back-support-

ing uprights—the builders tried two methods, both attractive. One was just two coats of water-white lacquer. The other was a single coat of white resin sealer brushed on, then gently wiped off when half dry.

Can you build the furniture with hand tools? The answer is yes.

Power equipment will make your job easier, but the construction is so simple that you can safely attempt it with just a few basic hand tools.

[Continued on page 254]





beautify any room in your home  
for as little as **\$750\***

...with new

**Bolta-Wall®**

**PRE-PASTED VINYL TILE**

So easy to use! Just wet the back and stick in place—no muss—no fuss! And *one single box* will add real beauty to a room like the kitchen, bath, or bedroom above.

Available in soft, pastel colors of realistic *Bamboo*—or rich shades of *Mahogany* and *Random Cork* effects—Bolta-Wall vinyl tile stays beautiful for years with just a sudsy cloth—won't stain or scuff.

Beautify your home the long-lasting, low-cost way—with new PRE-PASTED Bolta-Wall vinyl tile!



MAHOGANY  
PATTERN

BAMBOO  
PATTERN

RANDOM  
CORK  
PATTERN

**"Just wet the back . . . and apply to wall or ceiling"**



**SEND  
FOR FREE SAMPLE  
AND FOLDER . . .**

The General Tire & Rubber Co.  
BOLTA PRODUCTS Division, Lawrence, Mass.

Please send me free sample, an illustrated folder and the name of my nearest Bolta-Wall dealer.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

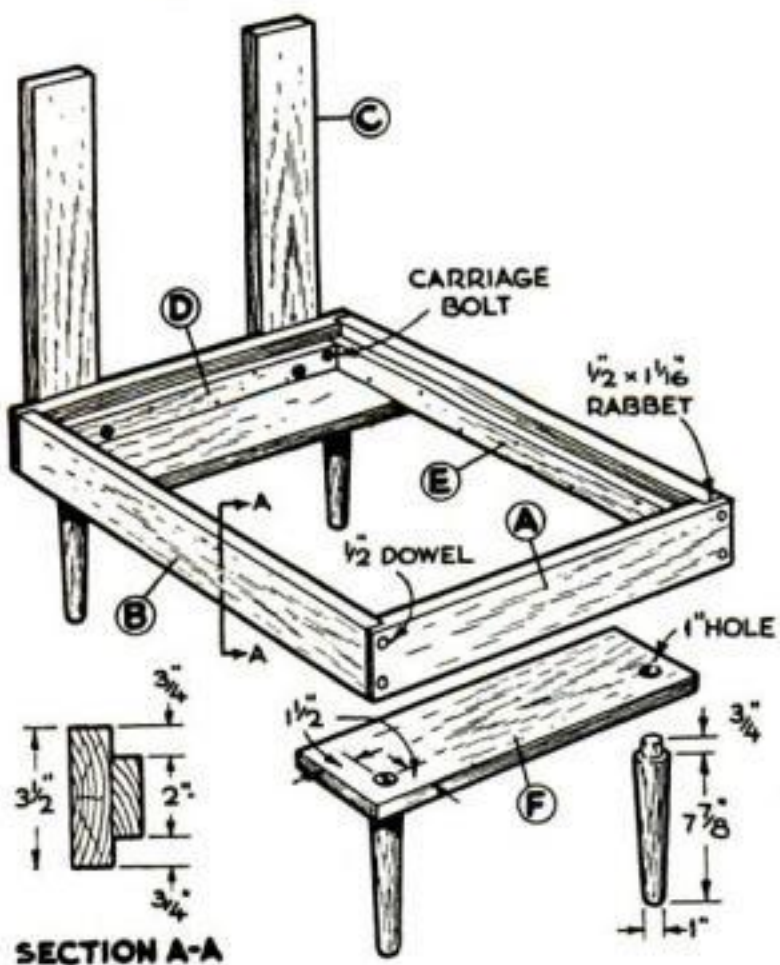


P.S.-9

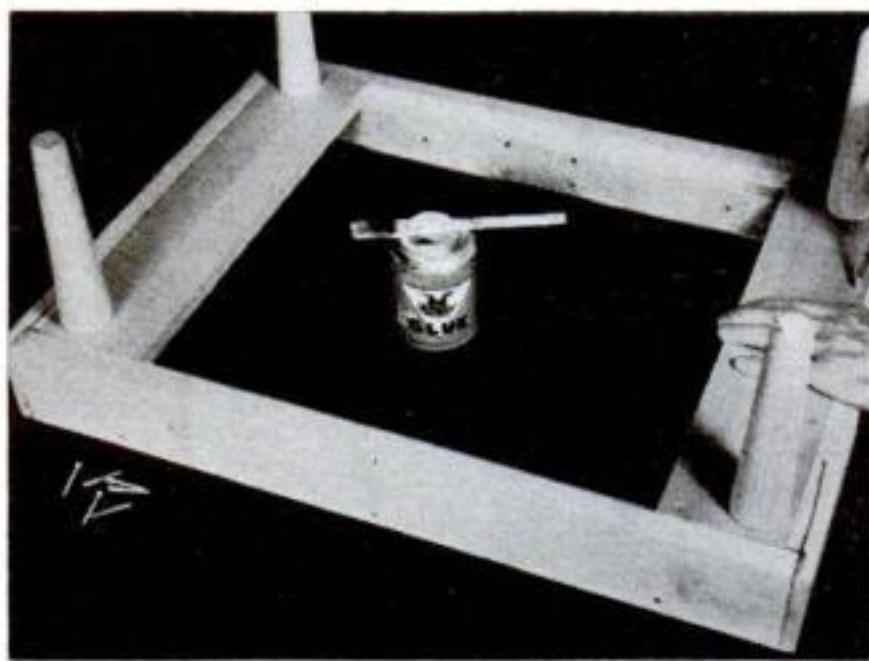
\*Approx. cost of box of 54 tiles (8" x 8") at dept. stores and your flooring or building supply dealer. Slightly higher in west.



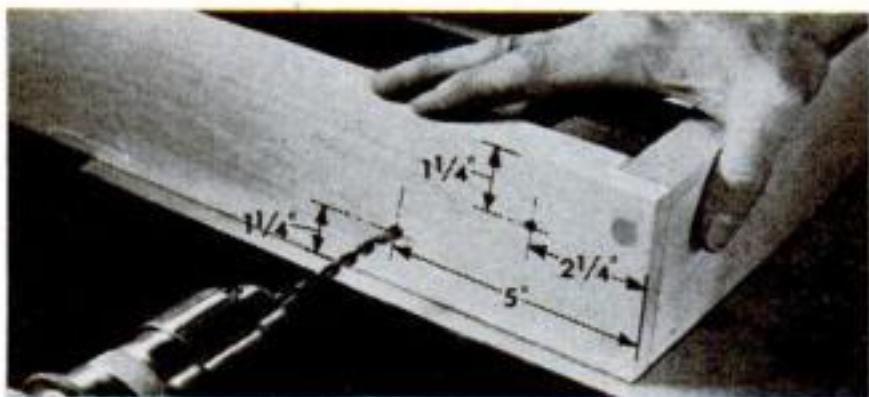
## How you make the basic frame [Continued from page 252]



**CUT THE HARDWOOD** pieces, rabbet each end of the front and back pieces and assemble with glue and  $\frac{1}{2}$ " dowels. After the glue has set, nail in the 2"-wide inner frame pieces, centering for a  $\frac{3}{4}$ " margin top and bottom.



**ATTACH LEG ASSEMBLIES** under the frame with No. 8 flathead screws and glue. For the sofa, make three leg assemblies and attach them front-to-back, centering the middle assembly.



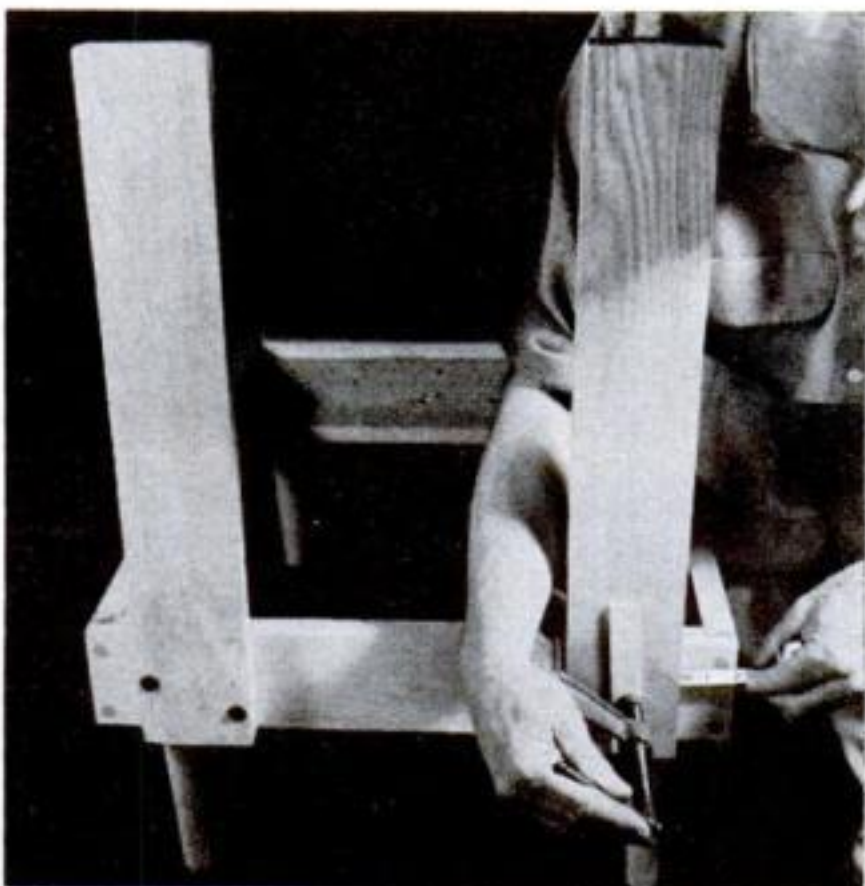
**LOCATE AND DRILL** two  $\frac{1}{4}$ " holes like this in the back frame member for the back uprights. For the sofa, position these holes  $12\frac{3}{4}$ " and  $15\frac{1}{2}$ " from the rear corners of the frame.

## PARTS FOR THE CHAIR BASE

- 2 pc. 1-1/16" x 3 1/2" x 21" hardwood (A)  
2 pc. 1-1/16" x 3 1/2" x 28 7/8" hardwood (B)  
2 pc. 1-1/16" x 3 1/2" x 22" hardwood (C)  
2 pc. 3/4" x 2" x 17 3/8" pine (D)  
2 pc. 3/4" x 2" x 27 7/8" pine (E)  
2 pc. 3/4" x 5 5/8" x 18 7/8" pine (F)  
4 pc. 2" x 2" x 8 5/8" hardwood (legs)



**GLUE AND WEDGE** legs into 1" holes. Round legs can be bought or lathe-turned. Or taper all four sides of 2"-by-2" hardwood and glue in a 1" dowel. Cut a wide kerf for the wedge.



**CLAMP UPRIGHTS** over frame holes, locating 1 7/8" from corner. Drill from inside to match holes. Bolt on uprights with 3" carriage bolts.

**[Continued on page 256]**



# TORO



*\$169<sup>50</sup>\*...the best you can buy*

Extra-heavy steel castings . . . mirror-polished working surfaces . . . years-ahead design features (like the single out-in-front control that either tilts—accurate to 1/10 degree—or raises the blade) . . . all these are yours in the Toro 10-inch Deluxe Tilt-arbor Saw—the *best* table saw you can buy.

Other professional-quality machines in the Toro home power tool line include: an 8-inch Deluxe and an 8-inch Standard Tilt-arbor saw,

a 12-inch drill press, 10-inch band saw, 18-inch jig saw, 4-inch belt sander, 4 and 6-inch jointer-planers.

You can see them all and get all the specifications in the latest full-color Toro Power Tool Catalog. For your free copy write Toro, 3016 Snelling Ave., Minneapolis 6, Minnesota.

*\*Table extensions and stand extra. Prices higher in the West and Canada; subject to change.*

## TORO

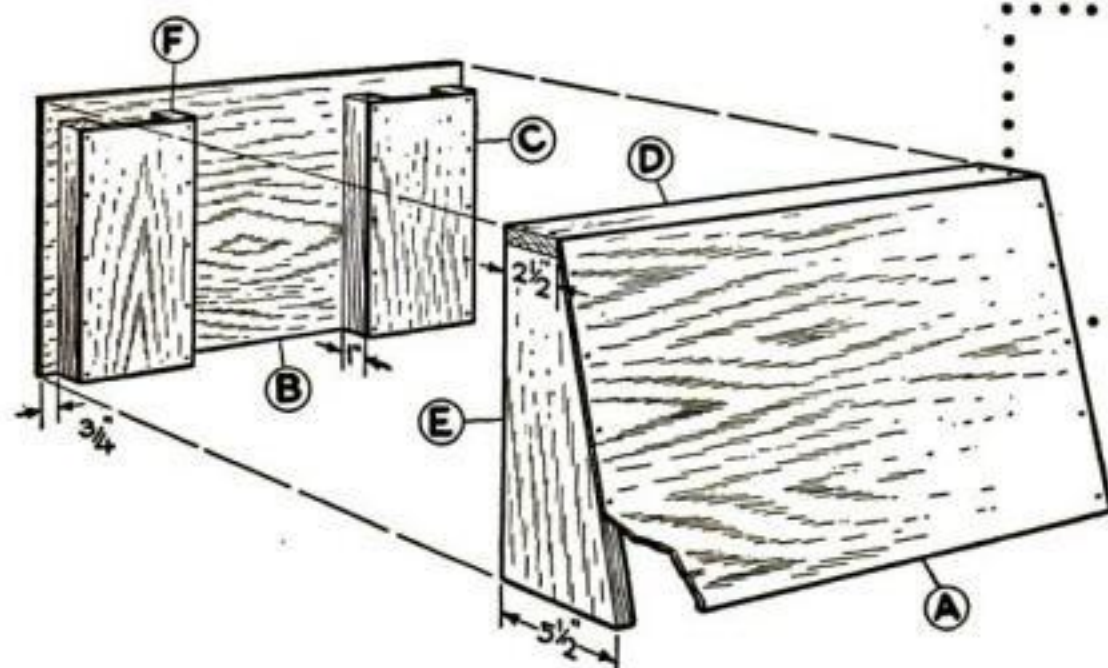


TORO MANUFACTURING CORPORATION • MINNEAPOLIS 6, MINNESOTA

SEPTEMBER 1956 255



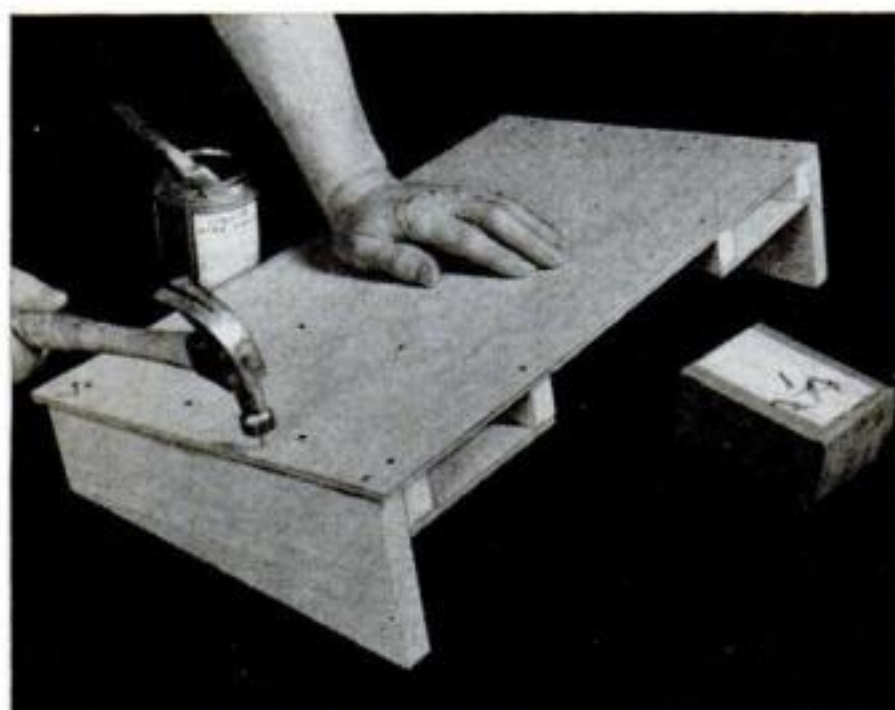
## How you make the back [Continued from page 254]



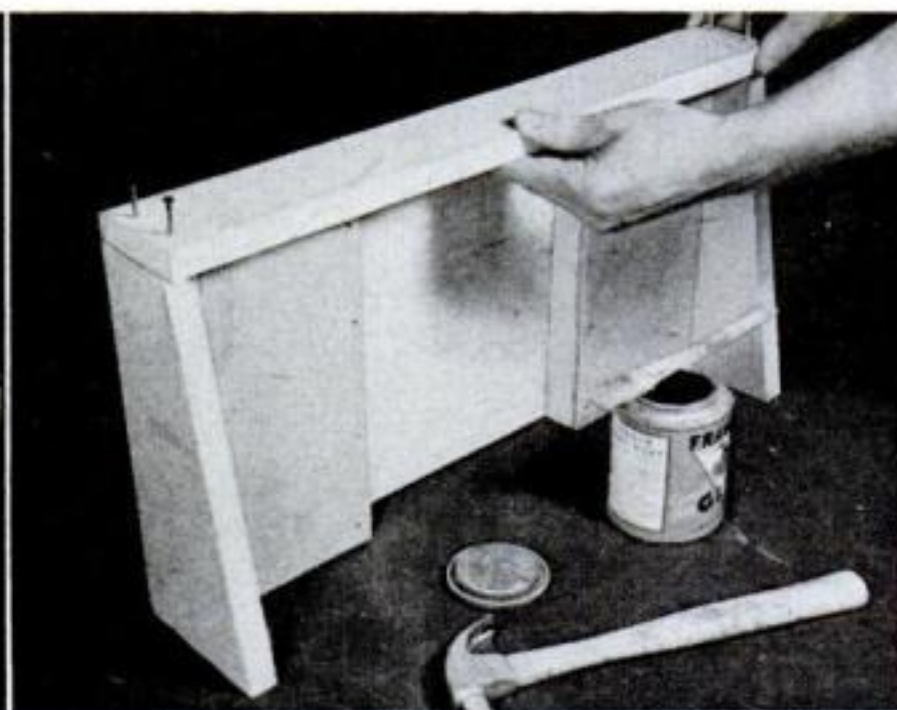
### PARTS FOR THE CHAIR BACK

- 1 pc.  $\frac{1}{4}$ " x 12" x 21" plywood (A)
- 1 pc.  $\frac{1}{4}$ " x  $11\frac{3}{4}$ " x 21" plywood (B)
- 2 pc.  $\frac{1}{4}$ " x  $5\frac{1}{2}$ " x 11" plywood (C)
- 1 pc.  $\frac{3}{4}$ " x  $2\frac{5}{8}$ " x 21" pine (D)
- 2 pc.  $\frac{3}{4}$ " x  $5\frac{1}{2}$ " x 11" pine (E)
- 4 pc.  $\frac{3}{4}$ " x  $1\frac{1}{4}$ " x 11" pine (F)

**ASSEMBLE THE TWO SLEEVES** first and glue and nail them  $\frac{3}{4}$ " from each end of the plywood back panel. If you're building the sofa, attach the sleeve assemblies  $11\frac{1}{2}$ " from the panel ends.



**ATTACH THE TAPERED ENDS** next. These pieces can be taper-ripped from an 8"-by-11" piece of wood. Make three such pieces for the sofa, placing two at the ends and centering one.

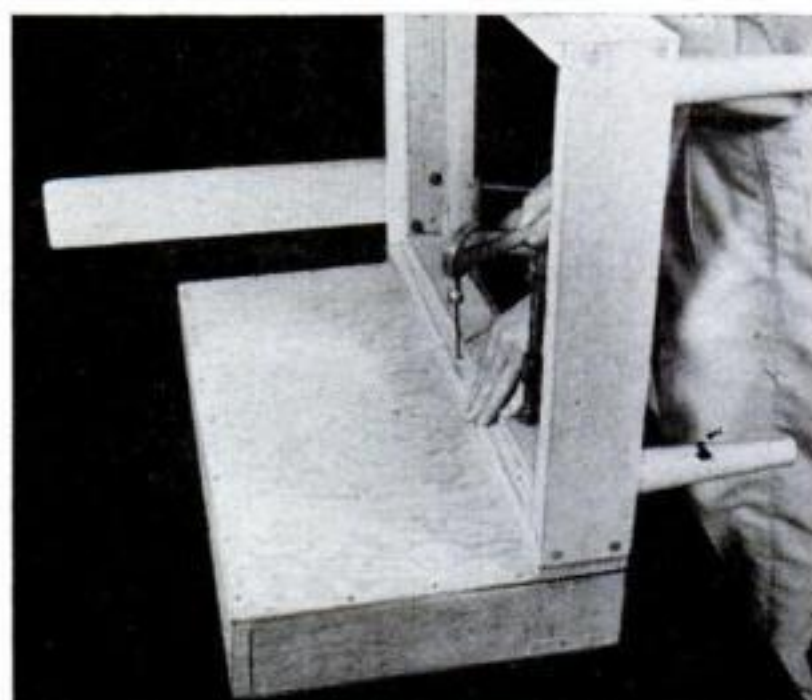
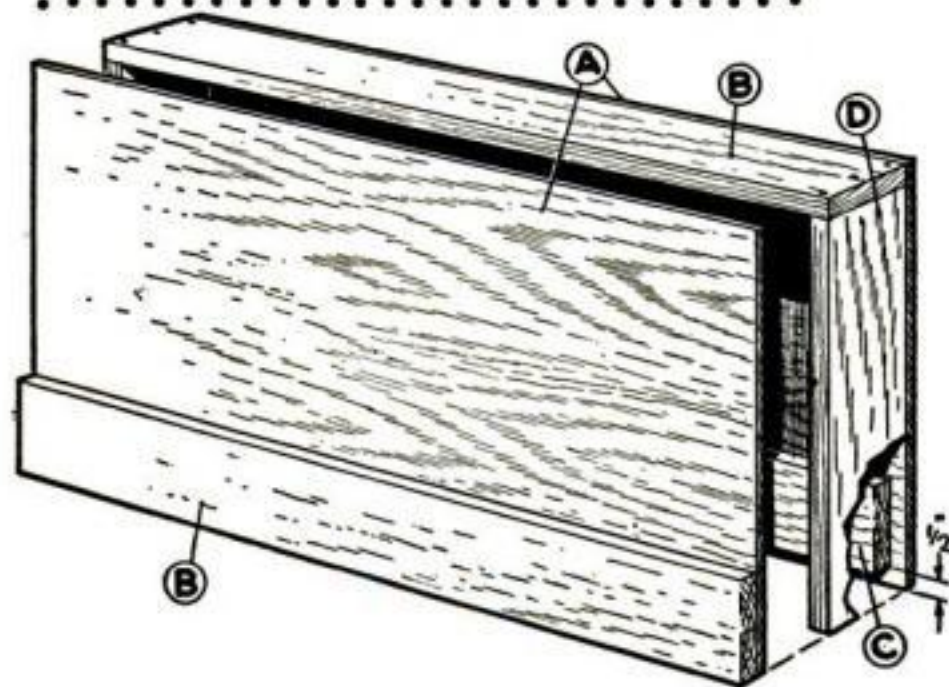


**TOP STRIP,  $2\frac{5}{8}$ " wide,** goes on. Glue and nail it to the narrow ends of the tapered pieces. Sand or plane its edge flush with the taper. Then attach the front plywood piece.

## How you make an arm

### PARTS FOR AN ARM

- 2 pc.  $\frac{1}{4}$ " x  $15\frac{1}{2}$ " x 30" plywood (A)
- 2 pc.  $\frac{3}{4}$ " x  $3\frac{5}{8}$ " x 30" pine (B)
- 1 pc.  $\frac{3}{4}$ " x  $3\frac{5}{8}$ " x  $28\frac{1}{2}$ " pine (C)
- 2 pc.  $\frac{3}{4}$ " x  $3\frac{5}{8}$ " x  $14\frac{3}{4}$ " pine (D)



**ARM IS A BOX** made from one-by-four softwood and  $\frac{1}{4}$ " fir plywood. Butt the  $28\frac{1}{2}$ " piece of one-by-four (part C) between up-rights, raising it  $\frac{1}{2}$ " from the bottom edge. Fasten arm to base frame with three  $\frac{1}{4}$ "-by-3" carriage bolts, centering one and placing others 4" from the ends. Remove arm until the upholstery is on.

[\[Continued on page 260\]](#)



# STANLEY STEELMASTER

## *The Finest Hammer Ever Made*

Driving nails is work — no doubt about it. But it's also the kind of clean, thumping exercise a man can enjoy. There's smacking satisfaction in belting a shiny tenpenny into stout 2 x 4 studding. This is the hammer to use . . . for accuracy, authority and pleasure . . . it's the Stanley STEELMASTER, the finest hammer ever made.

### **TEMPERED RIM MINIMIZES CHIPPING**

Exclusive! Rim of striking face is induction tempered to minimize chipping.

**LOCKED-ON HEAD** — The head is permanently locked to the handle; it will never come loose.

**CHROME ALLOY HANDLE** — Special chrome alloy steel handle *will not break!* It flexes a little, it absorbs vibration, but it will not break. Chrome plating prevents rust.

**ACUSHNET CONTOURED GRIP** — Good-to-the-hand neoprene forms a non-slip, cushioned grip. It won't mar either, so the butt end can be used to tap work into place.



### **FREE "HAMMER HOLSTER"**

Introductory extra! Your hardware dealer has free leather holster to keep STEELMASTER within reach when you're working.

Hammers up, men. Pick the finest made — the Stanley STEELMASTER. In 13, 16, and 20 oz. sizes. For useful nail chart send 10¢ to Stanley Tools, 639 Elm St., New Britain, Conn.



# STANLEY

THE TOOL BOX OF THE WORLD



# 3 kinds of wall lighting you can install

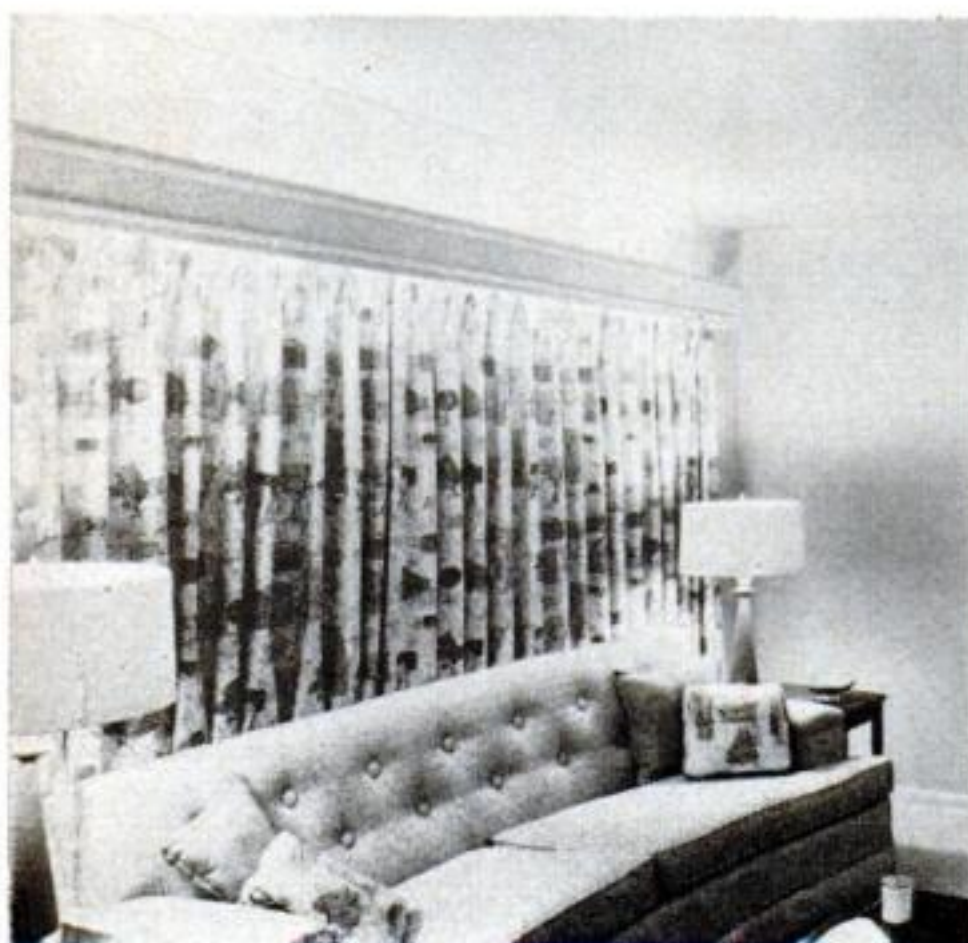
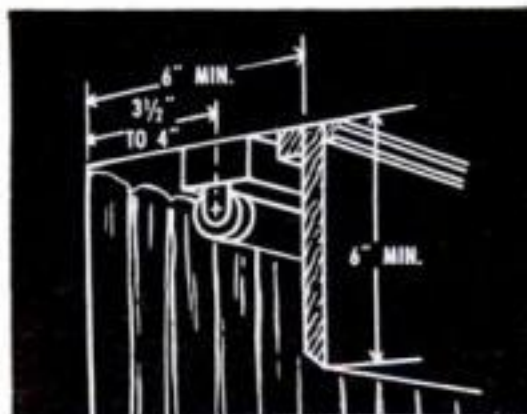
**H**ERE'S a way to add new glamor and usefulness to any room. Wall lighting makes low ceilings seem higher, and narrow

rooms seem wider. It highlights draperies and pictures. And what's more, it gives just the right soft light for TV-viewing.



## LIGHTED CORNICES

attach directly to the ceiling, and give downward light. They are usually installed wall-to-wall, and give the effect of lifting the ceiling. If the tops of your windows are less than 12 inches from the ceiling, cornice lighting is best for you. Try it to brighten a mural or wall mirror. Or to bring out the texture of stone, wood and flock wallpapers. Since all ceilings need some lighting, it's a good idea to supplement cornice lighting with upward light from another source.



## LIGHTED VALANCES

make windows and draperies interesting at night as well as in the daytime. Because they're placed about 12 inches from the ceiling, they wash both walls and ceiling with light. With a lighted valance, ceilings look higher and rooms larger. Rooms will seem sunny and cheerful even on gloomy days. They are most effective installed from wall-to-wall, but can also be used individually over windows and draperies.

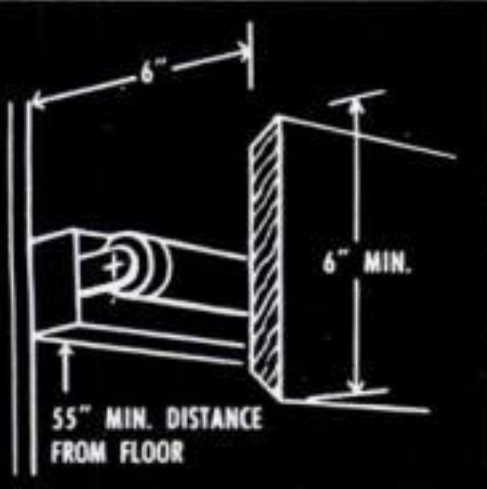




## LIGHTED WALL BRACKETS

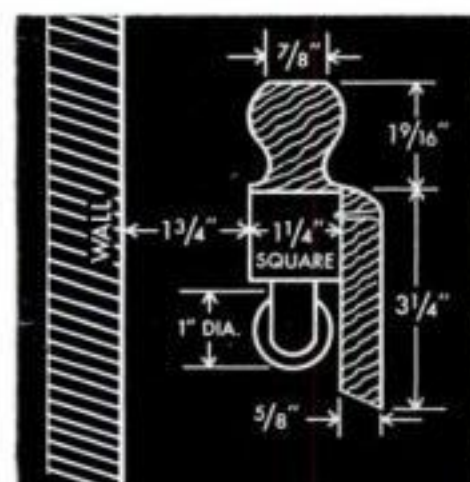
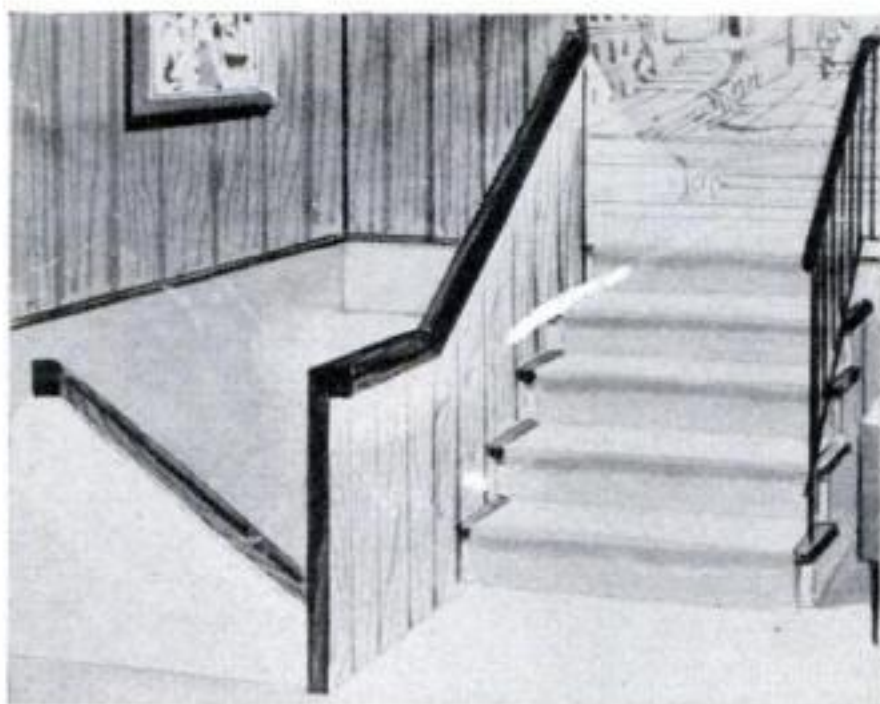
wash inner walls with light. Use them to balance valance or cornice lighting or as individual

centers of interest. Try a lighted bracket in the living room over the fireplace or over a furniture or picture grouping; in the bedroom over a bed or full-length mirror; and in the kitchen over range, sink and work counters.



## LIGHTED HANDRAILS

make stairways attractive as well as safe. Use 18"—15 watt deluxe fluorescent tubes, (T-8 type, 1" dia.) on 1 1/4" x 1 1/4" white channel with remote ballast. Attach channel to underside of handrail, countersinking sheet-metal screws into channel to hold shield (a standard molding).



**WALL LIGHTING FIXTURES** have three basic parts. 1) *Ready wired white metal channel* that holds the ballast. Available in standard lengths from your electrical supply dealer. 2) *G-E fluorescent tube or tubes* to fit channel. These vary in length and wattage depending on the size of the channel, and the area to be lighted. De Luxe warm white fluorescent

tubes are recommended for most rooms. 3) *Faceboard* to shield tube. Faceboards in a variety of styles can be built with ready-cut stock materials from your lumberyard. You can trim boards with stock or carved moldings or jigsaw your own design. They're attractive, painted to match walls or covered with drapery fabric or wallpaper.

*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**

For specific instructions on installing wall lighting send 10¢ today for the Wall Lighting Guide.



**CLIP THIS COUPON AND MAIL IT WITH 10¢ TODAY**

**General Electric Co., Large Lamp Dept. PS-9  
Nela Park, Cleveland 12, Ohio**

NAME \_\_\_\_\_

STREET \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

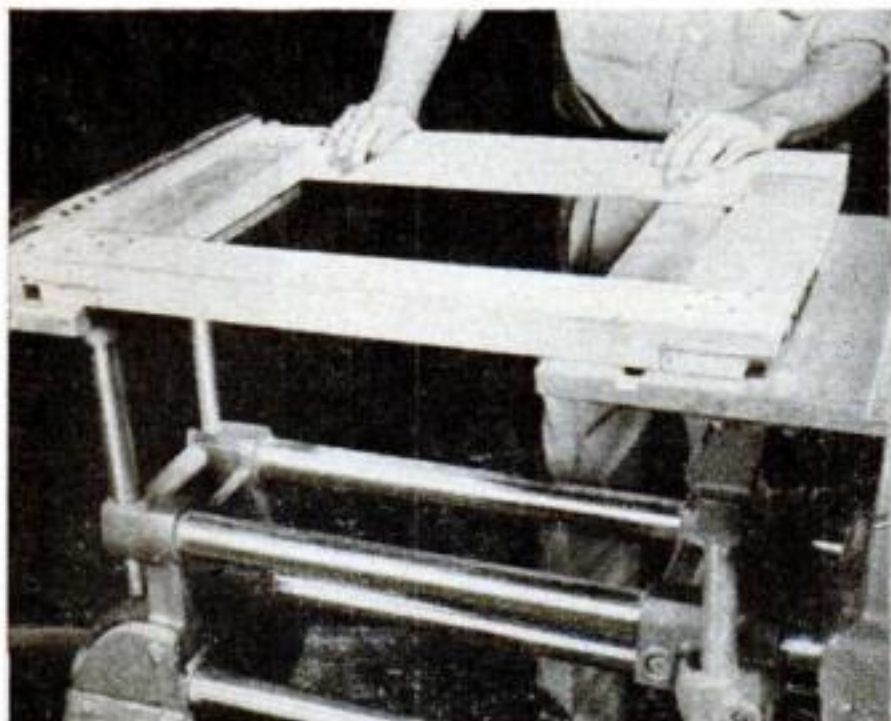
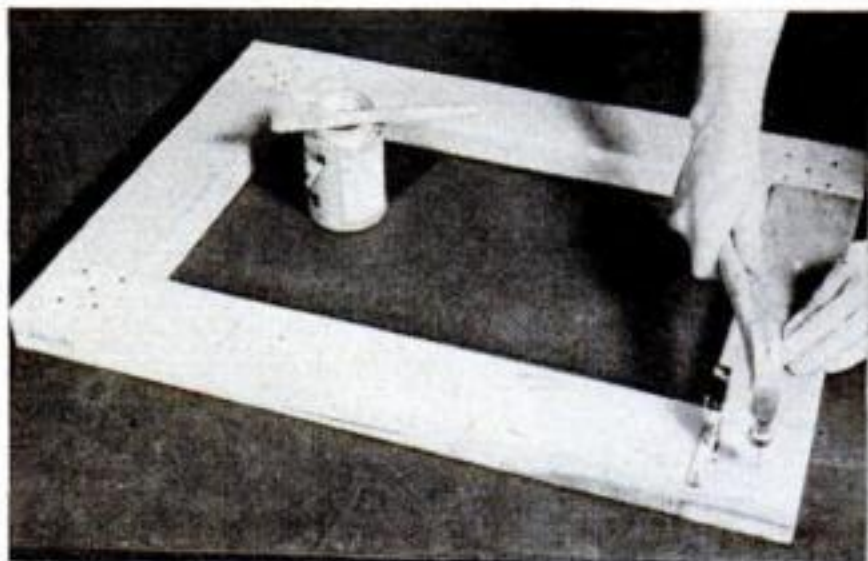
SEPTEMBER 1956 259



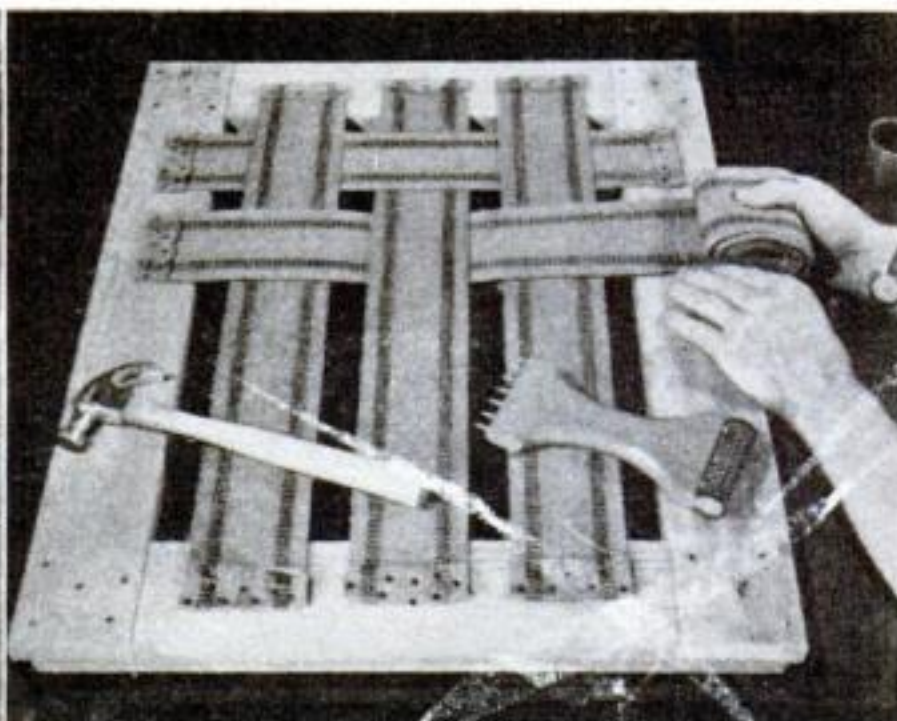
## How you make the seat frame

[Continued from page 256]

**USE TWO-BY-FOURS** for the frame, cutting two 20 $\frac{3}{4}$ " pieces and two 29 $\frac{3}{4}$ " pieces for the easy chair. (These dimensions allow clearance for the upholstery.) Half-lap the corners, keeping all nails at least 1 $\frac{1}{4}$ " from the edges.



**CUT A RABBET**  $\frac{3}{4}$ " deep and 1 $\frac{1}{16}$ " wide around the bottom edge of the frame. (A similar rabbet could be formed without power equipment by gluing and nailing narrow strips of  $\frac{3}{4}$ " wood under a frame of one-by-fours.)

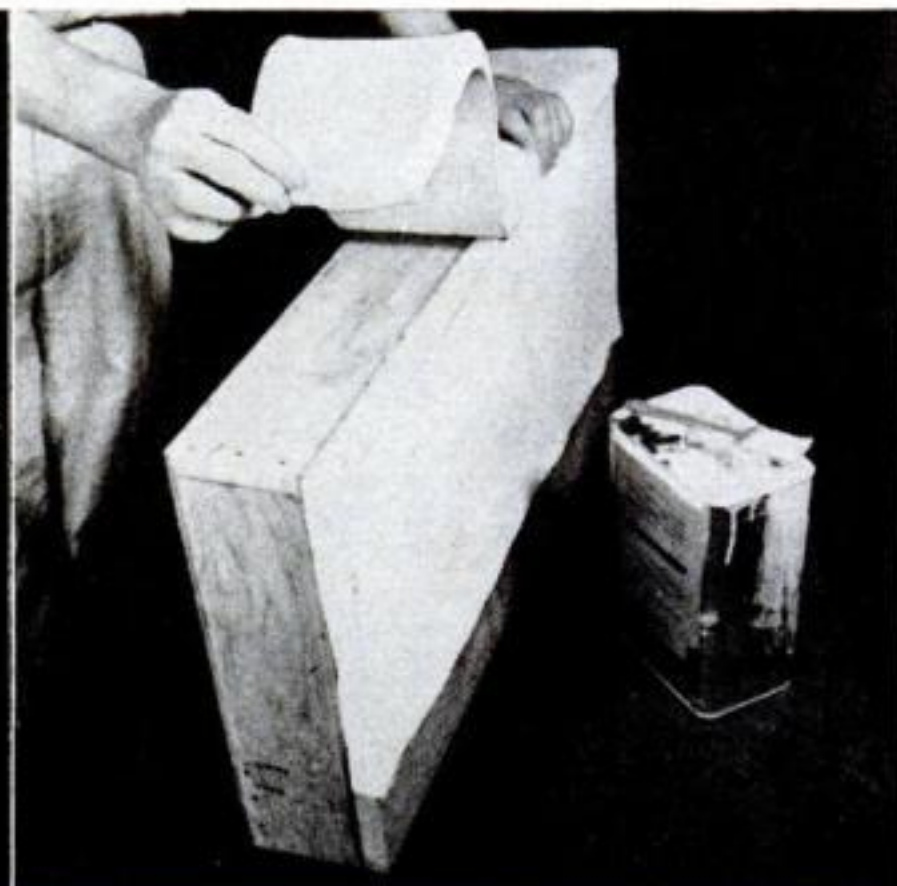


**WEB THE FRAME**, using three strips one way and five the other for the chair. A webbing stretcher like that shown helps tighten strips for tacking. Thrust it through the webbing, points up, and rock it back, round end against the frame.

## How you apply the cushioning



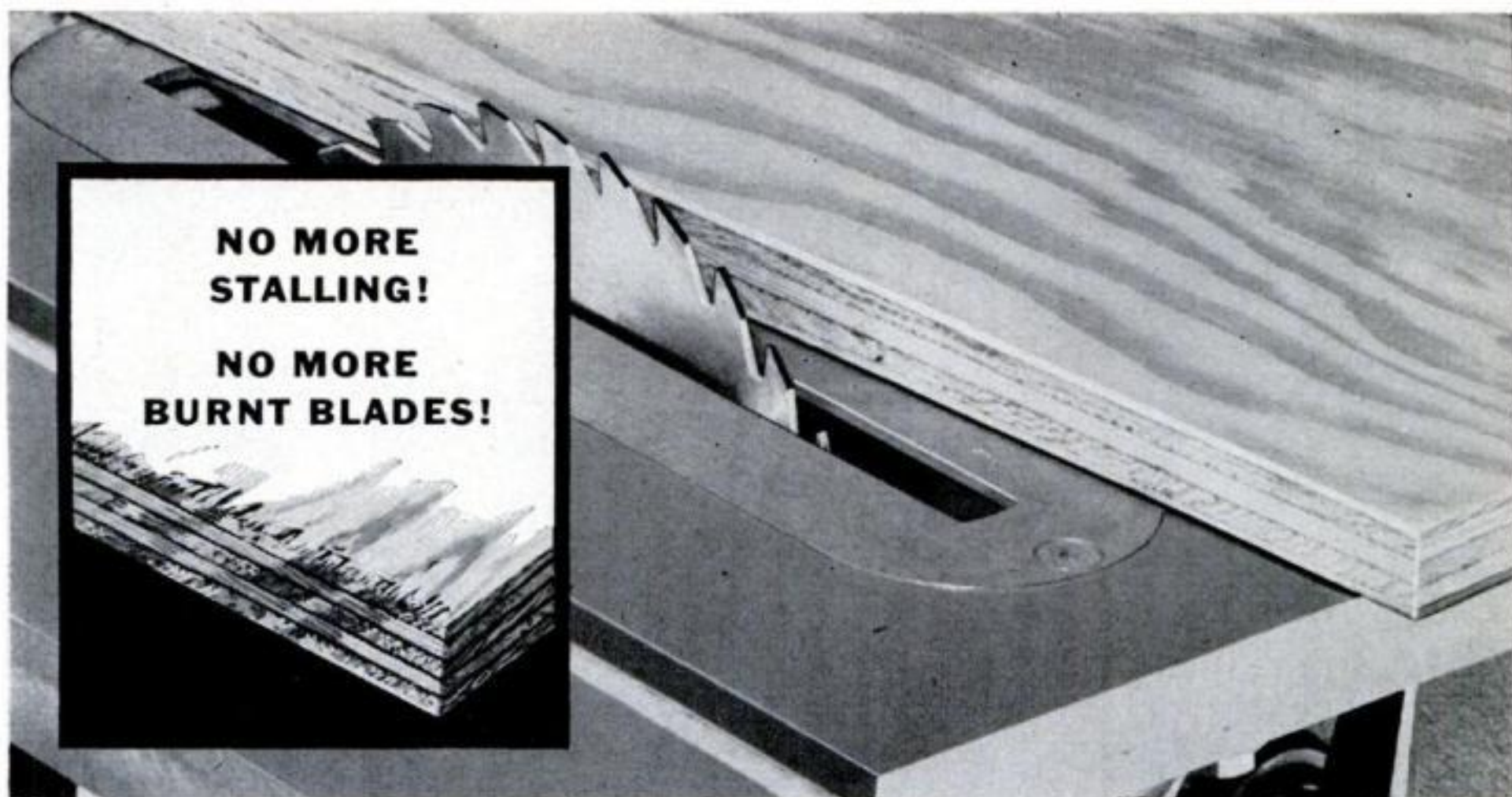
**CUSHION THE BACK** by cementing two layers of 1" foam rubber 12" by 21" to the sloping plywood. Then cement a 5"-by-21" piece to the top. Use cement made for foam rubber.



**CUSHION ARM** by cementing to inner side 12"-by-30" piece of 1" foam rubber. Compress edges as needed. Apply 5 $\frac{1}{8}$ "-by-30" piece on top.

[Continued on page 262]





**NO MORE  
STALLING!**

**NO MORE  
BURNT BLADES!**

Only **SHOPSMITH** with Power Shift  
gives you a clean cut every time!



MAGNA POWER TOOL CORPORATION

®T. M. Reg.

America's Finest Power Tools



EXCLUSIVE  
SPEED-DIAL

When you saw through  $\frac{3}{4}$ -inch plywood or green lumber, you need rugged power for a clean, true cut. Only SHOPSMITH's exclusive Speed-Dial Power Shift can give it to you! SHOPSMITH's Speed-Dial gives you correct work speeds (from 700 rpm to 5200 rpm!) and the power to do any kind of sawing job easily and accurately.

In addition, SHOPSMITH® is *all* the five major power tools you need to complete any project: 9" Saw, 12" Disc Sander, 16 $\frac{1}{2}$ " Vertical Drill, 34" Lathe, and unlimited-capacity Horizontal Drill—all in one compact unit! The built-in  $\frac{3}{4}$  hp motor, all belts and pulleys, are enclosed for safety. See SHOPSMITH demonstrated at leading hardware and department stores, or at any Montgomery Ward store.

Own **Shopsmith** for as little as \$3 a week

**Mail Coupon for 3 free books**

- 1** "Project Digest," 36 pages of modern woodwork projects.
- 2** The valuable home-shop guide: "What to Look for When you Buy Power Tools."
- 3** Illustrated 20-page SHOPSMITH catalog.

**MAGNA POWER TOOL CORPORATION**

Dept. 500-S, Box 2808, Ft. Wayne, Indiana, or Menlo Park, Calif.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

If you own SHOPSMITH check whether model Mark 5 \_\_\_\_\_ or 10ER \_\_\_\_\_

**ONLY SHOPSMITH LETS YOU COMPLETE THE JOB!**

SEPTEMBER 1956 261



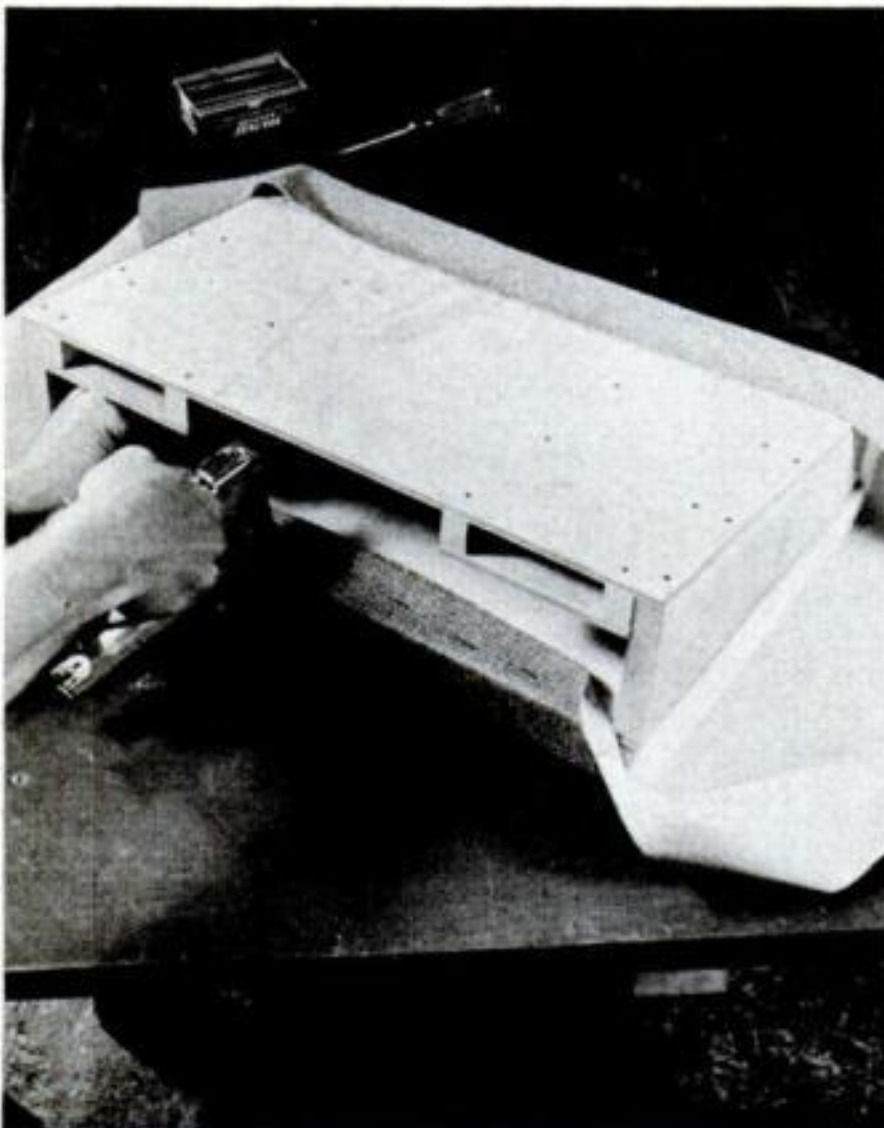


**FOR THE CHAIR SEAT** a 4½"-by-20"-by-30" foam-rubber cushion can be used. Brush cement around the edge of the cushion and let it dry. Then wrap upholstery tacking tape around the



cushion, letting 1" of the tape width stick up beyond the rubber. Staple or tack the tape to the frame. For the other furniture, cushion the seat with thick foam rubber cut to size.

## *How you upholster the furniture*



**USE A STAPLER** and attach the fabric like this—or pre-sew an envelope to fit the back or arm and slip it down over. For the back, first staple a piece around the front as shown above.



**TACK A BACK PIECE** inside-out over top flap, driving tacks through strip of cardboard. Fold fabric down over back and fold edges in flush.

[Continued on page 264]





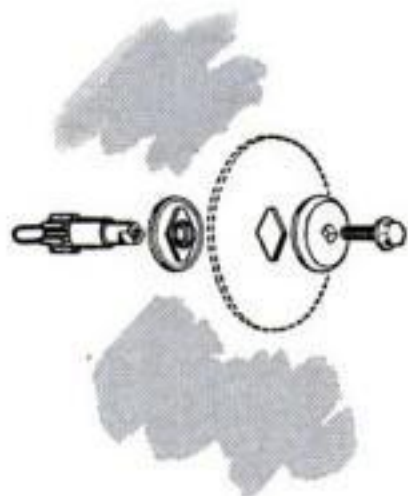
# SKIL

## 6 1/2" SAW

### ***ZIPS through the toughest cuts!***

This quiet-running SKIL 6 1/2" Saw zips through dressed 2 x 4's—even at 45° bevel. Weighs only 11 pounds for easy one-hand operation. Has high-speed blade (6100 r.p.m.), heavy-duty motor with die-cast housing, telescopic safety guard, quick-setting depth and bevel adjustments. A real professional builder's saw, priced for the homeowner at only \$64.95!

**Ask for a free demonstration today!** See the SKIL 6 1/2" Saw at your hardware, appliance, or department store. Other SKIL Saws from 4 1/4" at \$34.95 to 8 1/4" at \$89.95



**EXCLUSIVE!** New SKIL Vari-torque Clutch now available on larger SKIL Builders Saws. Protects user against kickback... saves wear and tear on gears, bearings and motor. On every job... through the toughest cuts... it's smooth, fast going with a SKIL Builders Saw. Over a million now in use by carpenters and craftsmen!



**Look for this  
SKIL TOOL CENTER  
at your local hardware store!**

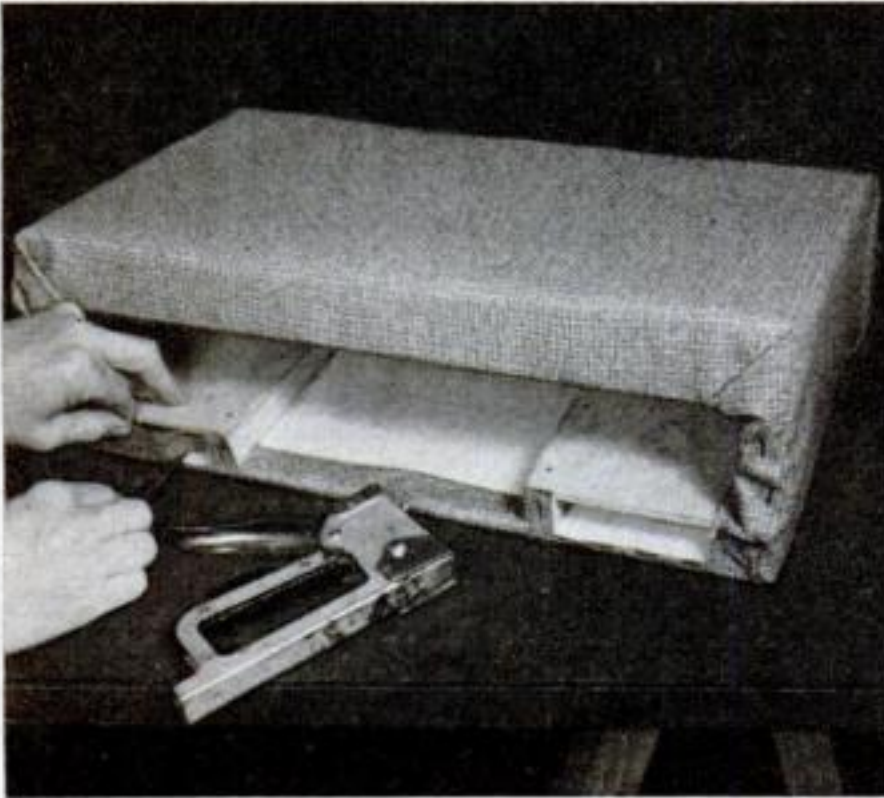


Made only by SKIL Corporation, formerly SKILSAW, Inc.  
5033 Elston Avenue, Chicago 30, Illinois • 3601 Dundas Street West, Toronto 9, Ontario  
Factory Branches in ALL Leading Cities

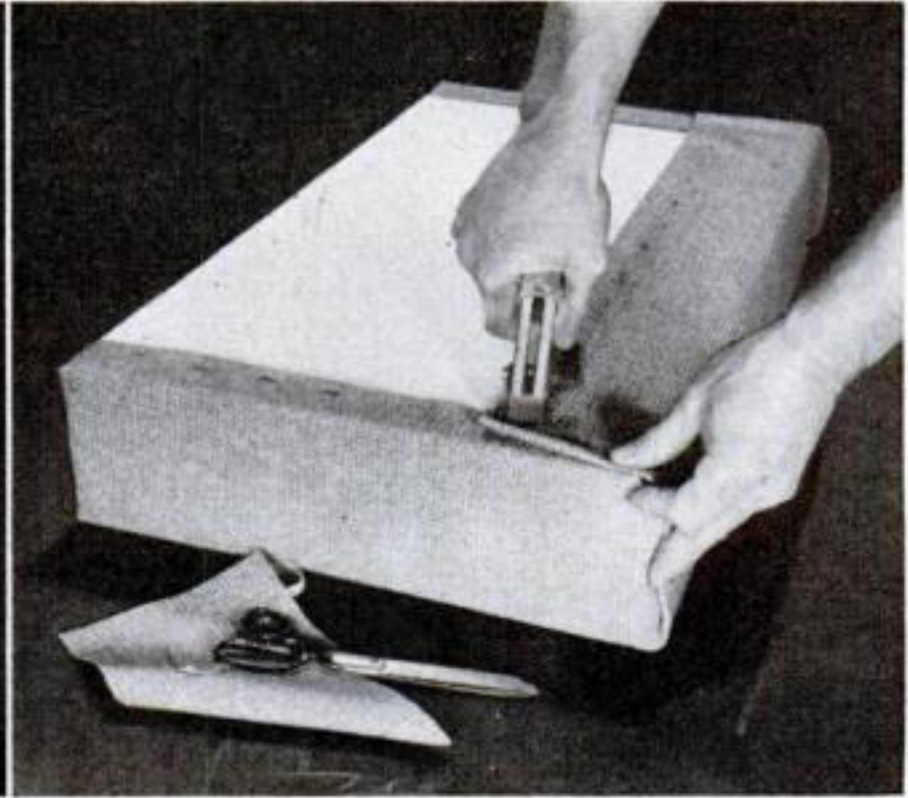


## Show Place Furniture

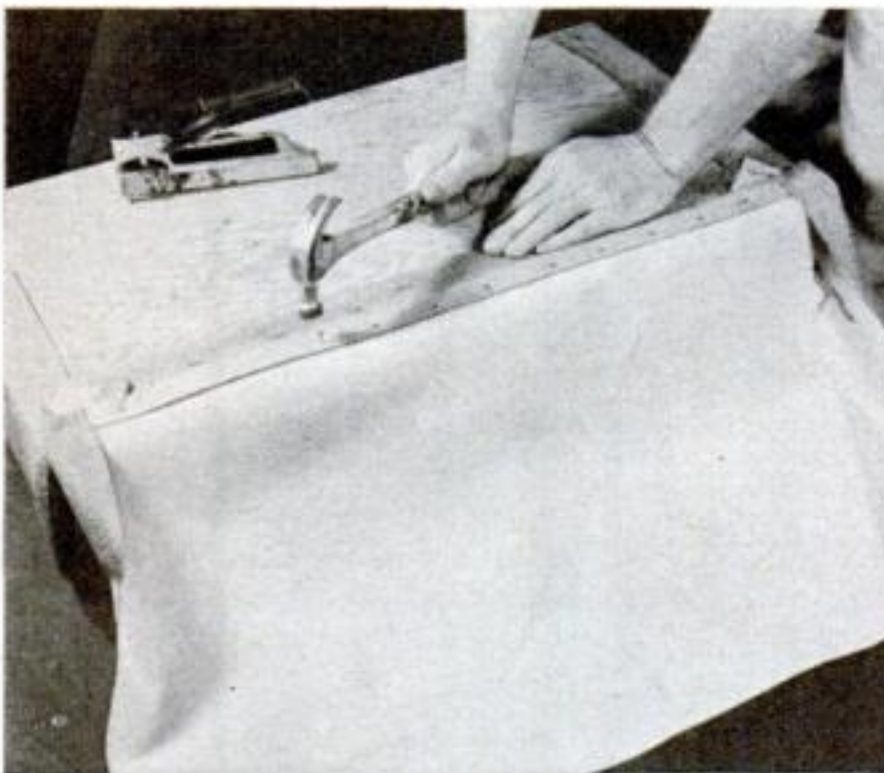
[Continued from page 262]



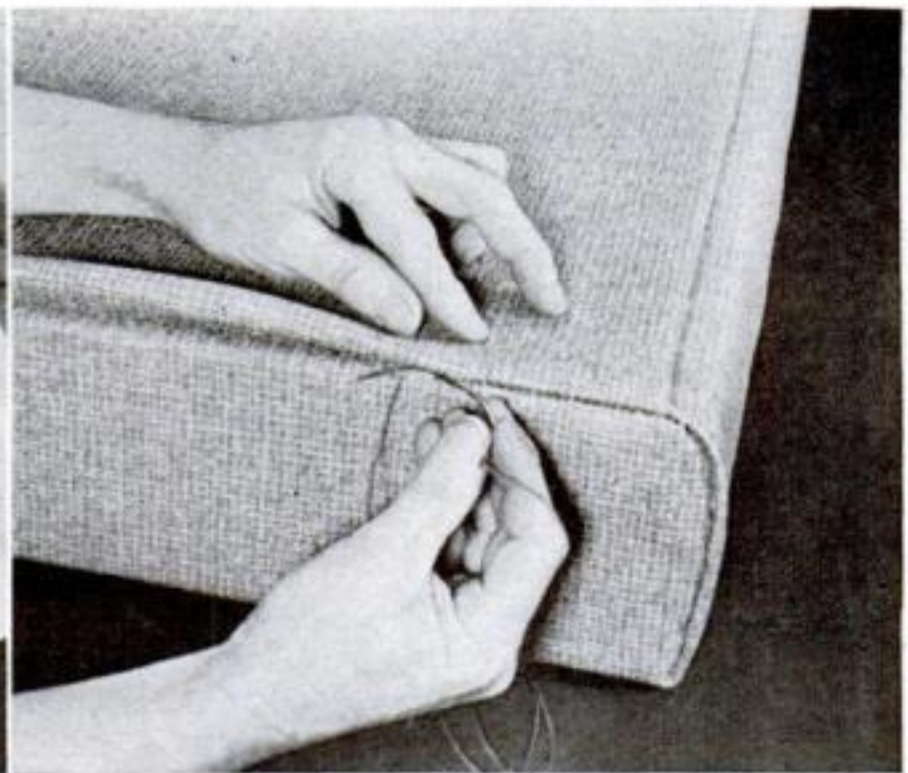
**FINISH** by stapling the edges around the bottom and cutting material away from the supporting sleeves, as above. A plastic with a fabric backing was used on the furniture shown here.



**UPHOLSTER THE ARM** by folding over a piece of fabric as you did for the back and staple to the outer surface as above. The base of the arm—and that of the back, too—remains uncovered.



**TACK ON A SECOND PIECE** then, through a stiffening strip; fold it down and staple the edges under the bottom as for back assembly.



**STITCH DOWN** the folded edges along the outer surface of the arm, using a curved upholstery needle. Stitch the back the same way. **END**

## Show Place Entry Divider

[Continued from page 109]

wide. Locate a two-by-two spacer at each end and one at the center point.

The two feet consist of two pieces of two-by-twelve, also cut to fit between the longitudinal frame members.

With the bench frame complete, mount the cabinet. Then cut and fit the two pieces of grooved plywood that form the surface of the bench itself, making the edges of the panel flush with the outer edges of the two-by-twos.

Finish off the edges all around the base with one-by-twos, mitering the corners. Locate the upper edge of the one-by-twos flush with the top surface of the grooved plywood on the bench. At the front, the continuation of this molding strip will then hide the  $\frac{1}{2}$ " gap between the cabinet bottom and frame.

Install metal standards for the movable shelves, mount the clothes pole and door hardware and apply the finish. **END**





## *It's easy to have modern interiors with Marlite*



### **Marlite-it-yourself!**

You can finish a room in a weekend with Marlite. This easy-to-install paneling goes up fast over old or new walls with little muss or fuss. And you can choose from Planks, Blocks, Large Panels, or hollow-core Korelock . . . all with the same soilproof plastic finish.

Need more room for a growing family? Want to add or remodel a bathroom, guest room, recreation room? Economical Marlite in new "Companion Colors," wood and marble patterns, puts new color and beauty into any room in your home. So easy to install you can do it yourself, Marlite's exclusive tongue and groove joint makes fitting easy. The baked melamine plastic finish resists fingerprints, smudges, stains; stays like new with an occasional damp cloth wiping. Before this weekend, see your building materials dealer, or mail coupon for information.



# **Marlite®**

PLASTIC-FINISHED  
WALL and CEILING PANELING

**Marlite Division of Masonite Corporation, Dept. 926, Dover, Ohio**

**NEW!** Send 10c for 16-page, full-color decorating book (over 40 illustrations), packed with dozens of imaginative building and remodeling ideas.



Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

ANOTHER QUALITY PRODUCT OF MASONITE® RESEARCH

SEPTEMBER 1956 265



# Dining Room Drop Shelf

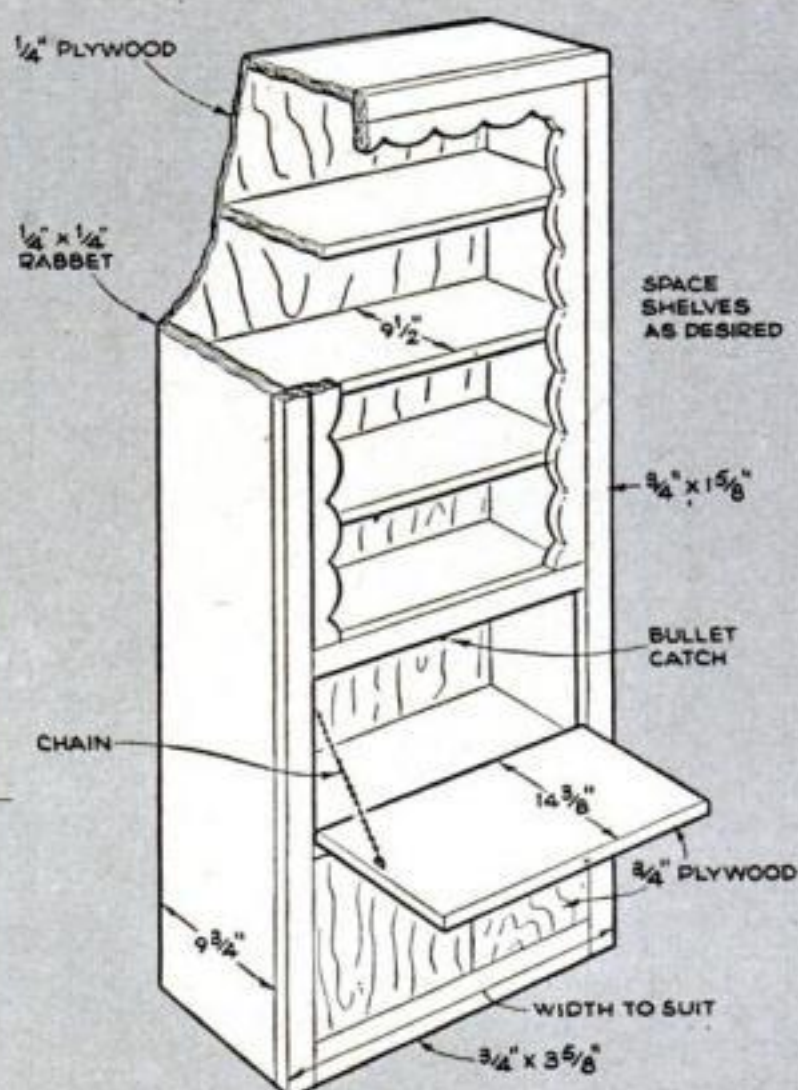
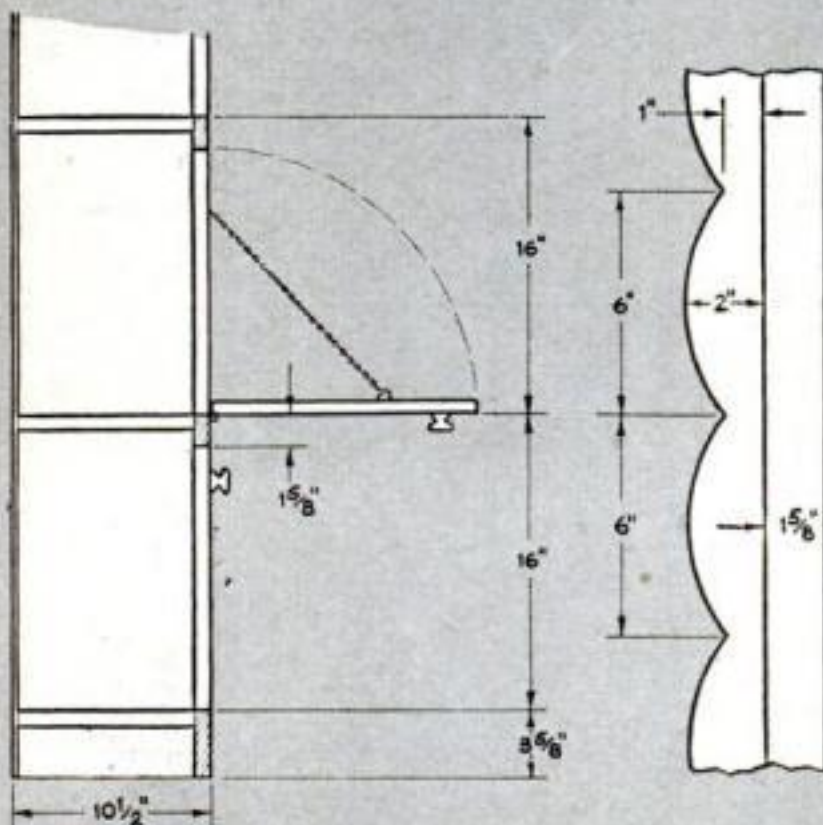
**keeps toaster and other appliances within reach.**

A DROP DOOR on a dining room cabinet makes a handy shelf for the toaster, waffle iron and coffee maker—they're within reach of the table yet the cords are out of your way. When not in use, the appliances are neatly concealed.

Perhaps you already have a buffet-type cabinet that you can adapt. Remove a door or doors, or a shelf, cut a  $\frac{3}{4}$ " plywood panel to fit the opening, mount it with a length of piano hinge and attach a retaining chain. If you don't have the cabinet here's how to build one.

You will need  $\frac{3}{4}$ " plywood for the doors and cabinet sides,  $\frac{1}{4}$ " plywood for the back and 10" stock shelving. One-by-twos can be used for the facing frame except for the apron—a length of one-by-four stock.

If desired, the shelves can be surrounded by scrollwork, bought already cut—or bandsawed in your own shop to the pattern sketched. Nail this to the one-by-two framing.







ANNOUNCING  
TRUE TEMPER'S NEW

***JET ROCKET***

HEAD WON'T LOOSEN  
HANDLE WON'T BEND OR BREAK

Now, at the amazing low price of only \$3.95, you can get this wonderful new JET ROCKET hammer by True Temper. JET ROCKET is built like the famous ROCKET that continues to bring unsolicited letters of praise from craftsmen and do-it-yourselfers alike.

Handle is tubular steel made of a boron alloy especially developed by The Timken Roller Bearing Co. Won't bend or break. Permanently attached to streamlined head, carefully forged and heat-treated for strength. Head is highlighted with a distinctive jet-black finish. Comfortable grip soaks up shock. Won't slip wet or dry, or in gloved hand.

Try the JET ROCKET yourself. Swing it a few times. Notice its perfect balance and feel. Look for it at your favorite tool counter displayed with the famous original ROCKETS—the finest hammer made. True Temper Corporation, 1623 Euclid Avenue, Cleveland 15, Ohio.

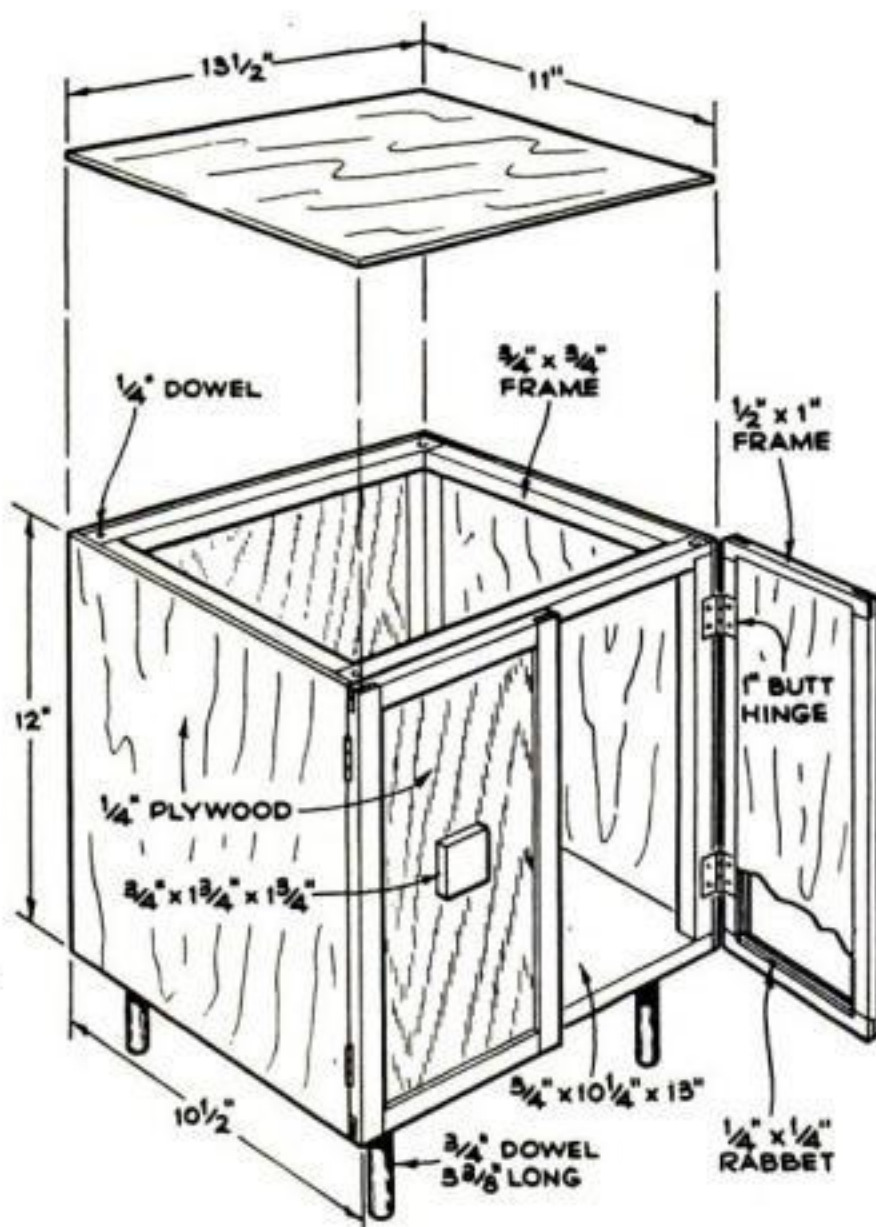
**TRUE TEMPER®**



Finest quality in Hammers, axes, hatchets  
Shears • Shovels • Garden, lawn and farm  
tools • Fishing tackle • Golf-club shafts



# Record Cabinet for Your Child

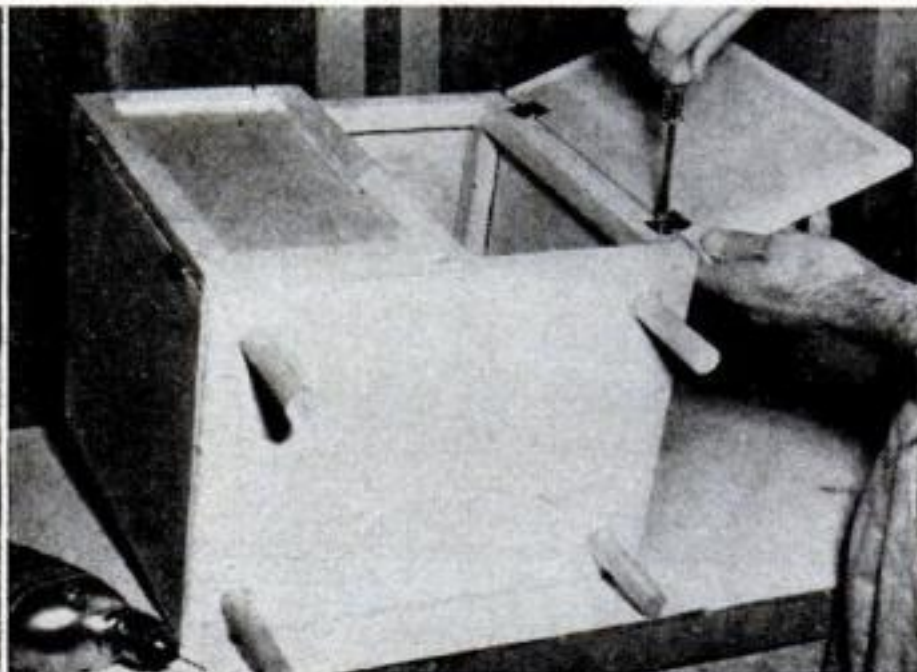
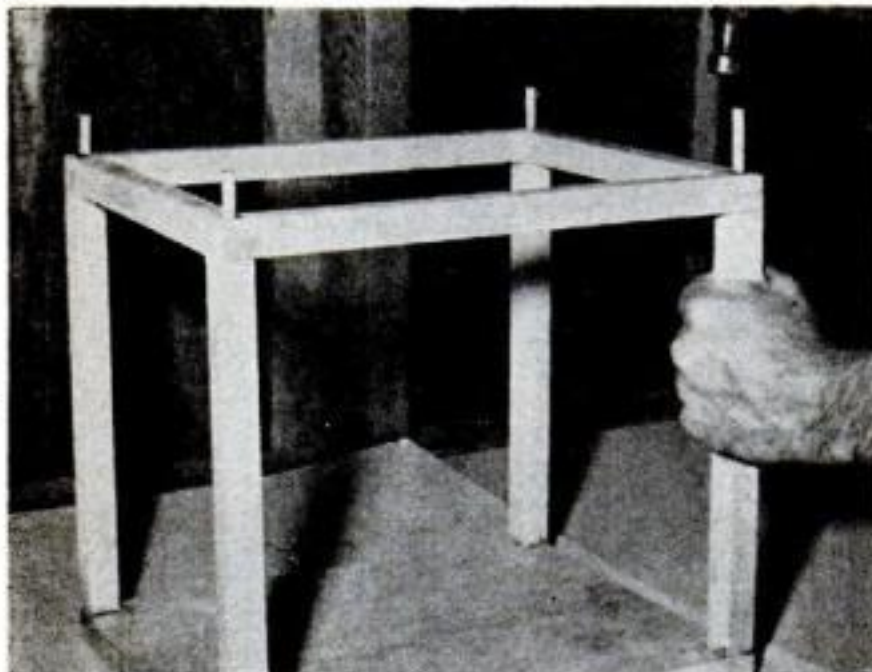


**D**OES your youngster have a record player? Are the player and records always scattered around the house?

The top of this cabinet provides a special place to keep a player of the usual size. The records fit inside.

Cut the base from  $\frac{3}{4}$ " plywood or cleat together  $\frac{3}{4}$ " pine for the width needed. Make the frame of  $\frac{3}{4}$ "-by- $\frac{3}{4}$ " pine strips, half-lapping the four top pieces. Join

the top frame and the base to the four corner posts with glue and  $\frac{1}{4}$ " dowels (bottom left photo). Make frames from  $\frac{1}{2}$ "-by-1" wood for the doors and cut  $\frac{1}{4}$ "-by- $\frac{1}{4}$ " rabbets to inset a  $\frac{1}{4}$ " plywood panel. Drill blind holes  $\frac{3}{8}$ " deep  $1\frac{3}{8}$ " from each corner of the base and glue in the  $\frac{3}{4}$ " dowel legs. Bevel the edges of two  $1\frac{3}{4}$ "-by- $1\frac{1}{4}$ " blocks of  $\frac{3}{4}$ " wood and screw them to the doors as pulls.





# NEW CLAUSING 10-inch SAW



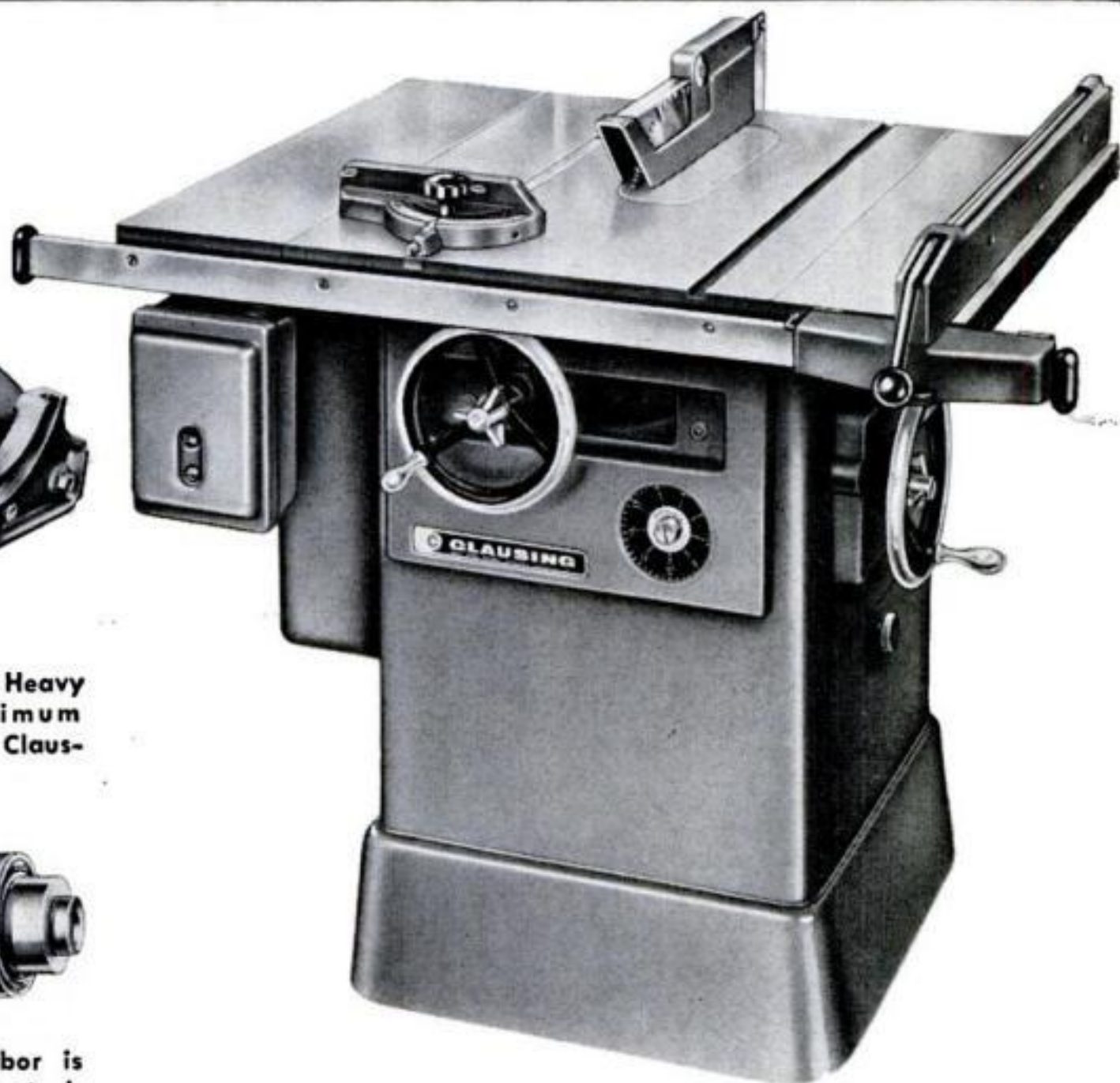
**MASSIVE CRADLE, ARM** — Heavy box-shape castings for maximum strength. Inside and out the Clausing is ruggedly built.



**BIG ARBOR, BEARINGS** — Arbor is solid bar of precision ground steel,  $\frac{3}{4}$ " in diameter. Spins on two large, sealed-for-life ball bearings . . . kept under preload by beveled retaining ring.



**MOST EFFICIENT TILT and HEIGHT CONTROL** — In both mechanisms, rack teeth are machine cut cast iron,  $\frac{3}{4}$ " wide . . . worms are  $1\frac{1}{2}$ " diameter steel. 8" diameter hand-wheels,  $4\frac{1}{2}$ " diameter tilt dial.



## Way ahead in Quality Performance and Value

Heavier throughout . . . more powerful . . . greater in production capacity . . . and unmatched for ease of operation and safety, Clausing gives you performance never before achieved in a 10" saw. Engineered to handle power up to 3 HP, the saw alone weighs 385 lbs! Has bigger arbor . . .  $\frac{3}{4}$ " diameter. Sealed-for-life, preloaded ball bearings . . . exclusive new, totally enclosed, fan-cooled, continuous-duty motors . . . the result of 3 years saw-motor research. 1,  $1\frac{1}{2}$ , 2 and 3 HP. Three big table sizes . . . up to  $54\frac{3}{4}$ " x  $27\frac{1}{2}$ "! Double-locking lift-off fence. Big, efficient mitre gauge. When you read the construction details and compare, you'll see that Clausing is in a class by itself—the saw to consider before buying *any* circular saw.

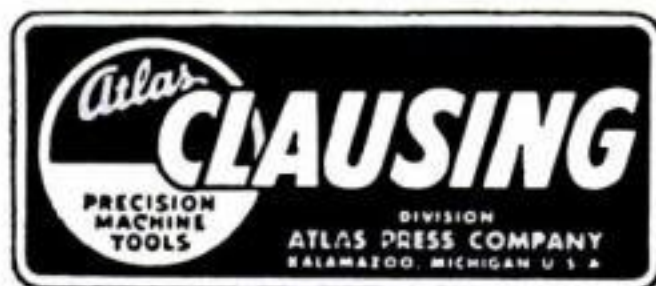
*Write* FOR FREE ILLUSTRATED CATALOG TODAY!

## CLAUSING DIVISION

*Atlas Press Company*

9-124 N. Pitcher Street

Kalamazoo, Michigan





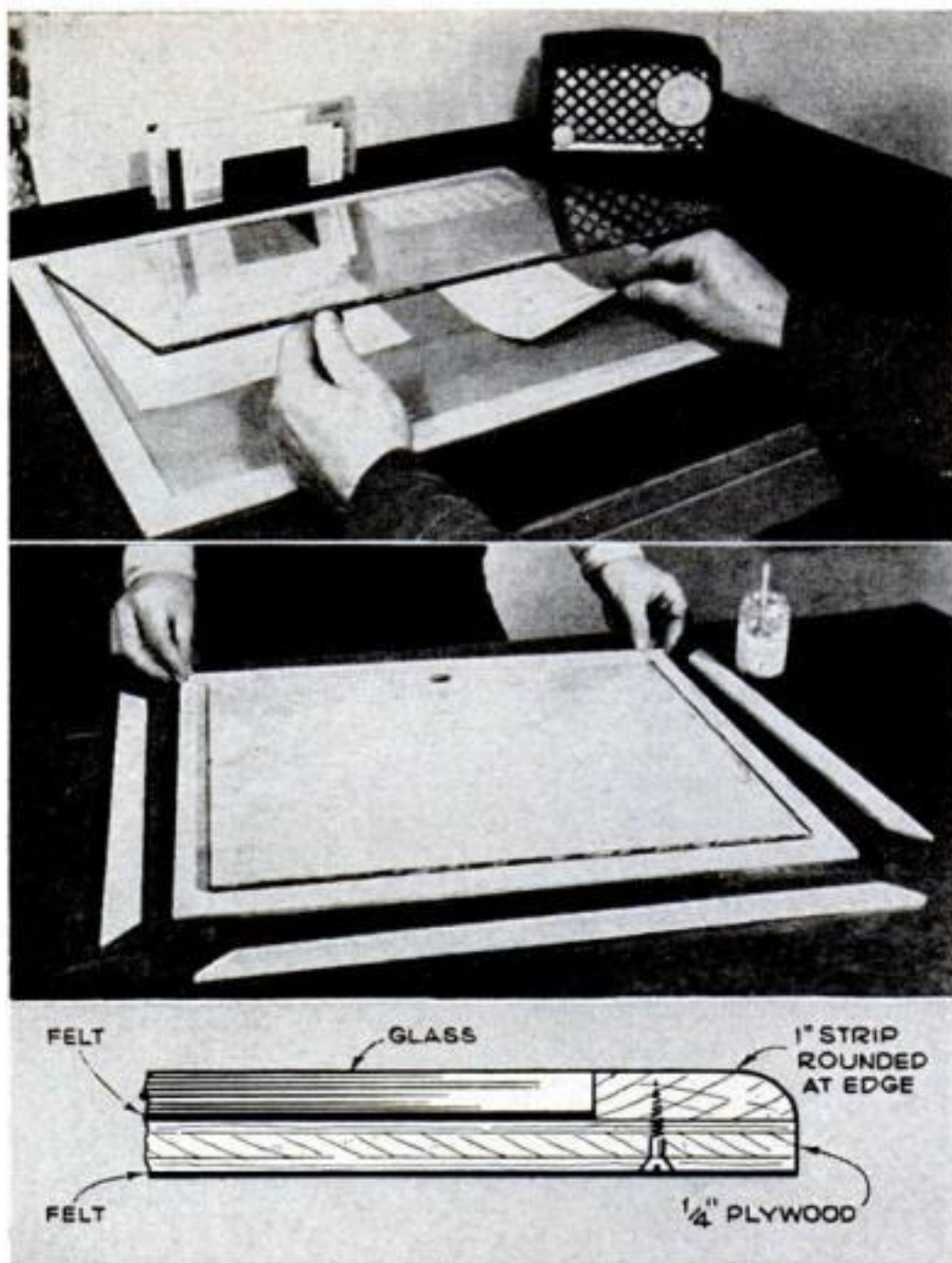
**How to make a**

## Glass-Topped Desk Pad

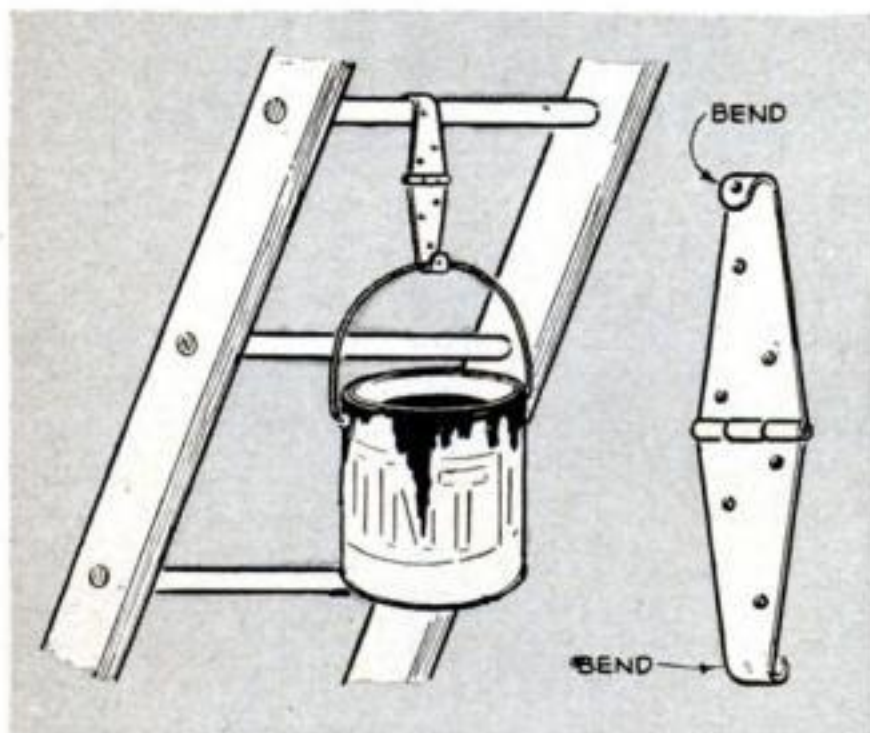
IF A glass covering for the full top of your desk at home isn't practical, try a pad with a glass insert like this. It gives a smooth writing surface and keeps reference data conveniently at hand.

Plate glass can usually be bought in an appropriate size, say 18" by 24". If you cut it yourself, grind down the sharp edges with a smooth carborundum stone.

Use a panel of  $\frac{1}{4}$ " plywood as an underlay for the glass, cutting this 1" greater than the glass all around. Then frame the glass with wood strips as thick as the glass and 1" wide, mitering the corners. Round off the outer edge of the frame after it has been glued and bradded to the plywood. Drill a 1" hole through the plywood near the front edge so that the glass can be raised from its recess for



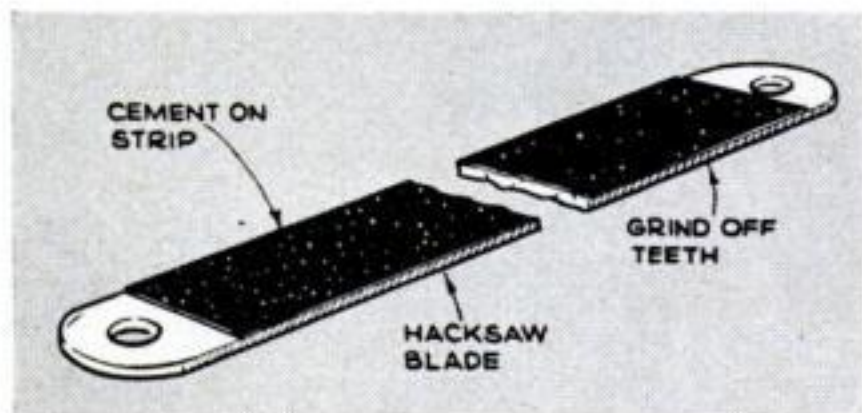
access to the papers underneath. Cement strips of felt to the bottom of the base to keep it from marring the desk top.—*Michael Ligocki, Gary, Ind.*



### Bent Hinge Holds Paint Pail

BEND the ends of an old strap hinge in opposite directions and you have a good hanger for your paint can while you work on a ladder. Hook one end over a rung, and place the can handle in the other.—*R. D. Rush, Columbus, Ohio.*

▶▶▶ WHEN you must bore a hole in a space where there's no room for a brace, see if you can locate one of those wheel-like handles for a garden faucet. These have a four-sided tapering hole into which the bit shank will fit snugly.



### Old Blade Is a Flexible Sander

A STRIP of sandpaper cemented to a hacksaw blade will help you do tricky finishing jobs. The flexible blade will conform to curves. Grind off the teeth first.—*R. G. Cooper, Trenton, Canada.*



# Aim for those cracks with AMERICA'S FINEST CALKING LOAD and fastest calking gun

Quick, easy way to fill cracks  
around windows and doors

Here's the gun and here's the load to protect your home! M-D SPEED LOADS are the "original" calking load . . . and still America's favorite. Quick, easy, convenient, clean. Available in off-white or pure white, with or without plastic nozzle. Use the load the experts choose . . . M-D SPEED LOAD with the M-D Speed Loader gun.



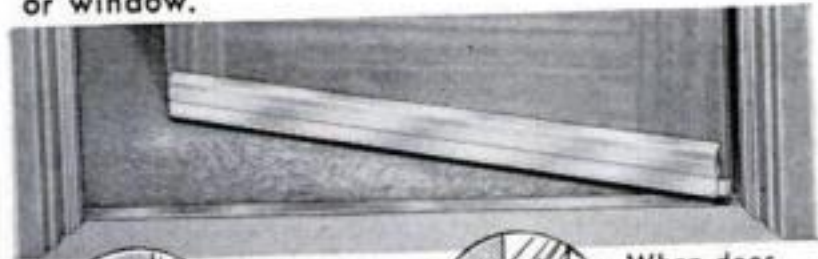
**Nu-CALK CALKING COMPOUND**  
also available in cans or  
handy size squeeze tube.

**Make Your Home Weather Snug!**



**Nu-WAY  
WEATHER  
STRIP**

Easiest strip in the world to put on. Moth-proof, pre-shrunk, colorfast wool felt and white metal. Can be used on any type door or window.



When door closes, felt bottom hugs floor tightly.



When door opens, felt bottom raises to clear carpet.

**Nu-GARD Automatic  
DOOR BOTTOM**

Made especially for doors where door bottom must clear thick carpet. Works automatically, sealing off room. Easily installed.



**Nu-Glaze  
GLAZING COMPOUND**  
"Stays Put"

Nu-Glaze is the perfect material for glazing wood or metal sash, replacing putty, setting plumbing, filling cracks. Will not dry out, crack, harden or peel. Clean to handle—easy to use.



**Nu-Phalt  
Plastic  
ASPHALT CEMENT**

Keep Nu-Phalt handy for sticking down asphalt shingles and tile floors, or for use on roofs, chimneys, flashings. Available in loads for use in calking guns.



**Sold by all Hardware  
and Lumber Dealers**  
**MACKLANBURG-DUNCAN CO.**  
Oklahoma City 1, Oklahoma

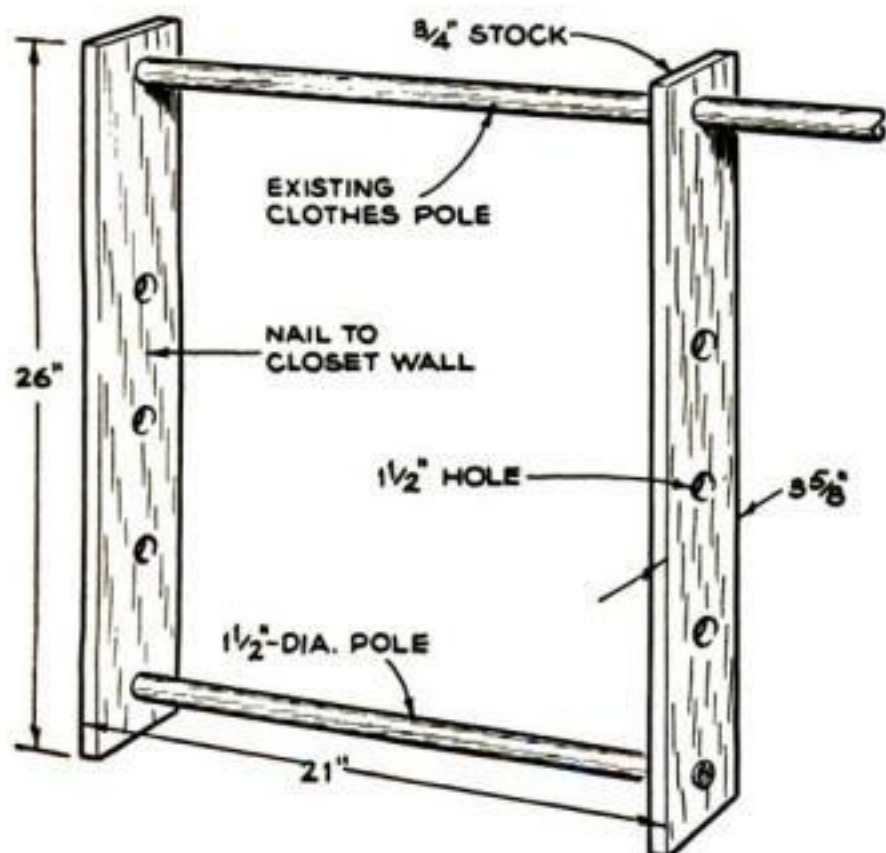




## Rod Rises as Child Grows

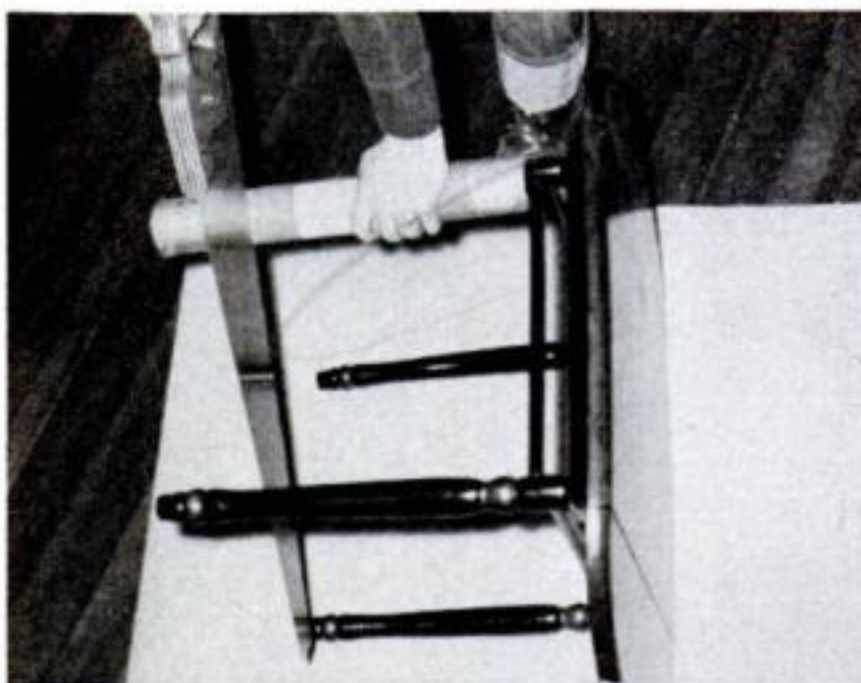
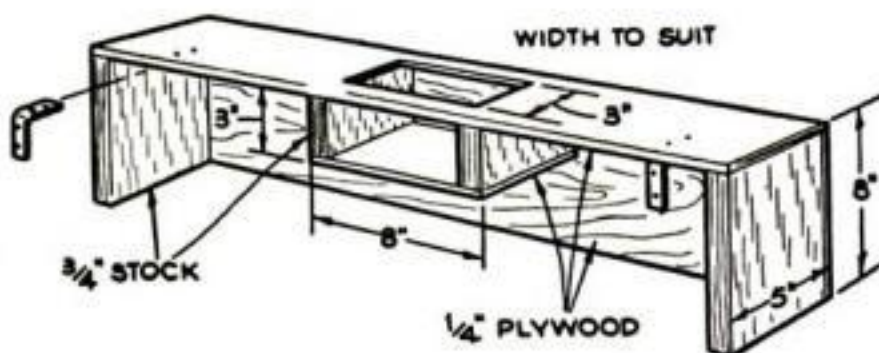
As my daughter grows, we'll be able to raise her clothes-hanger pole right along with her increasing height and longer dresses and coats.

The supplementary hanger was suspended from the existing clothes pole in the closet, and one of the pair of one-by-fours was nailed to the closet wall. Janelle now uses the pole in the bottom pair of holes. When the need arises, it'll take only a minute to pull out the pole and move it up to the higher holes.—*Jean Lyon, Cedar Rapids, Iowa.*



## How to Build a Plant Cornice

For an unusual window effect, install a planter cornice and drape a living vine from it. Build the cornice of  $\frac{3}{4}$ " plywood with ends of  $\frac{3}{4}$ " pine or plywood. Also make the ends and bottom of the receptacle of  $\frac{3}{4}$ " material, varying its dimensions if necessary so it will take a lightweight metal planter.



## How to Cut Legs Off Level

WHEN it's necessary to cut off the legs to lower a table, chair or other piece of furniture, a mailing tube will help you get a level job.

Measure off the desired leg length on the tube and make a saw cut part way through it at this point. Then slide the tube over each leg in turn and use the kerf on the tube as a guide in sawing off the leg.—*R. M. Woodbury, Natick, Mass.*



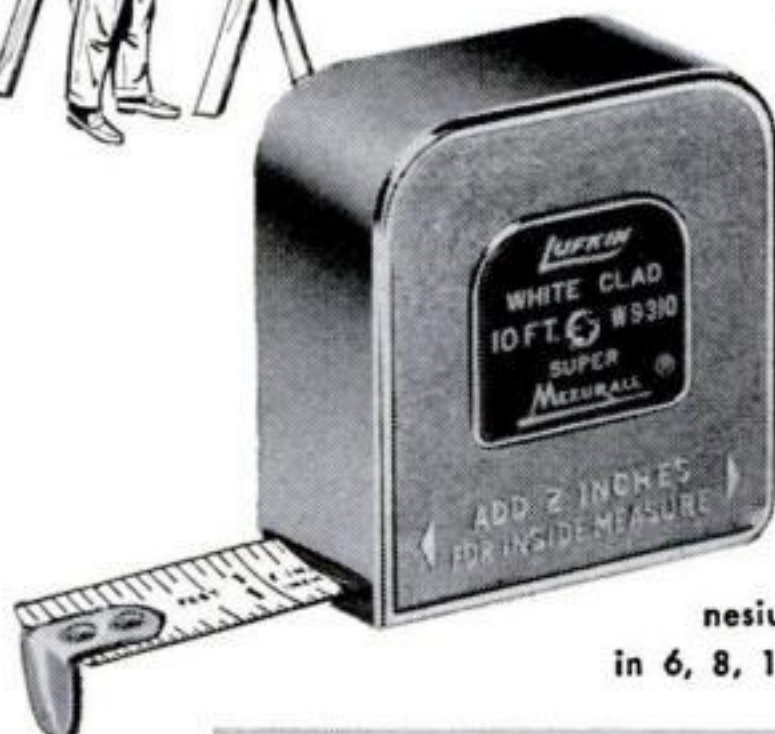
IT COSTS LESS TO BE ACCURATE!

BUY **LUFKIN**

**TAPES AND RULES**  
TO SAVE TIME AND MATERIALS



designed for the *home craftsman*  
**WHITE CLAD SUPER MEZURALL**



Make difficult measurements unassisted with this heavy duty tape rule.  $\frac{3}{4}$ " wide blade extends further unsupported and extra large self-adjusting end hook can be used for hook-over or butt measurements. 16" centers indicated. Bold black markings on snow white blade are easy to read. Top edge graduated in feet and inches to 16ths, bottom edge in consecutive inches.

Blades are easily replaceable. Rugged, featherweight, magnesium alloy case. Mezuralls are available in standard  $\frac{1}{2}$ " wide blades in 6, 8, 10 and 12 ft. lengths. **10 ft. \$2.39 12 ft. \$2.89**

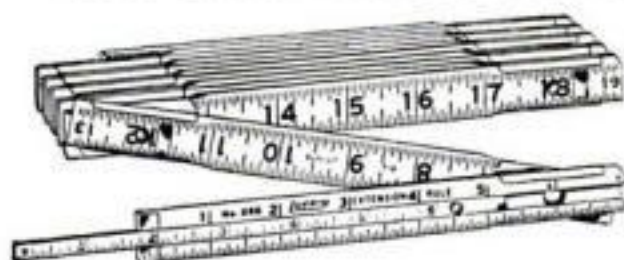
## IDEAL FOR ROOM AND GARDEN MEASUREMENTS WHITE CLAD BANNER LONG STEEL TAPE

A practical long steel tape at a practical price. Snow white  $\frac{3}{8}$ " wide tempered steel blade with jet black graduations in feet and inches to 8ths. Rugged, rust-resistant welded steel case covered with handsome maroon vinyl. Choice of folding hook ring or regular ring.

**25, 50, 75 and 100 ft. lengths. 50 ft. \$5.00**

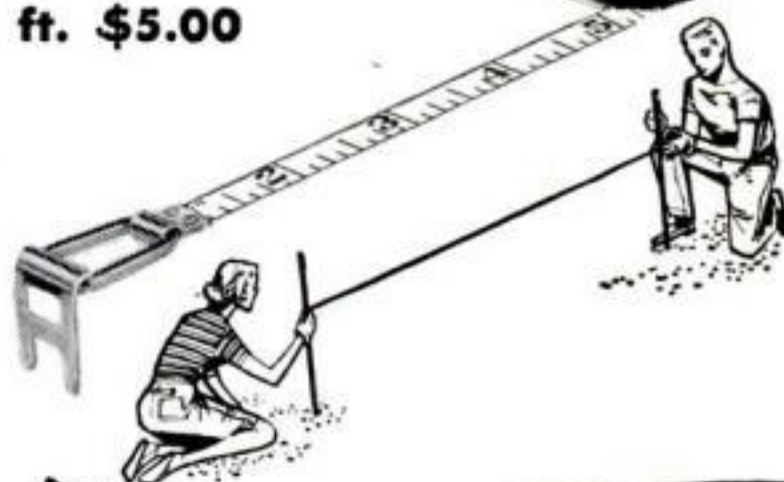


## THE CARPENTER'S FAVORITE



## X-46 EXTENSION WOOD RULE

An extra strong rule for heavy duty use. 50% thicker straight grained hard maple sections. Triple locking spring joints with brass strike plates for long wear. 6" fitted brass slide for inside measurements. Bold markings are embedded in wood and plastic coated. **6 ft. \$2.50**

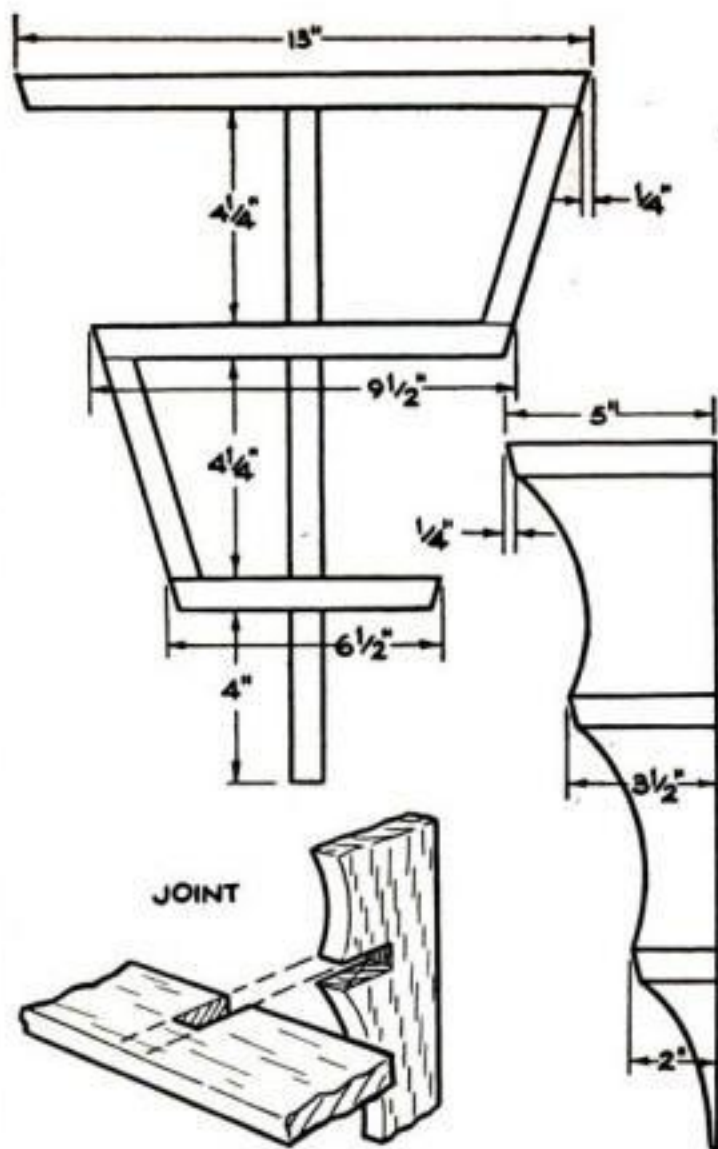
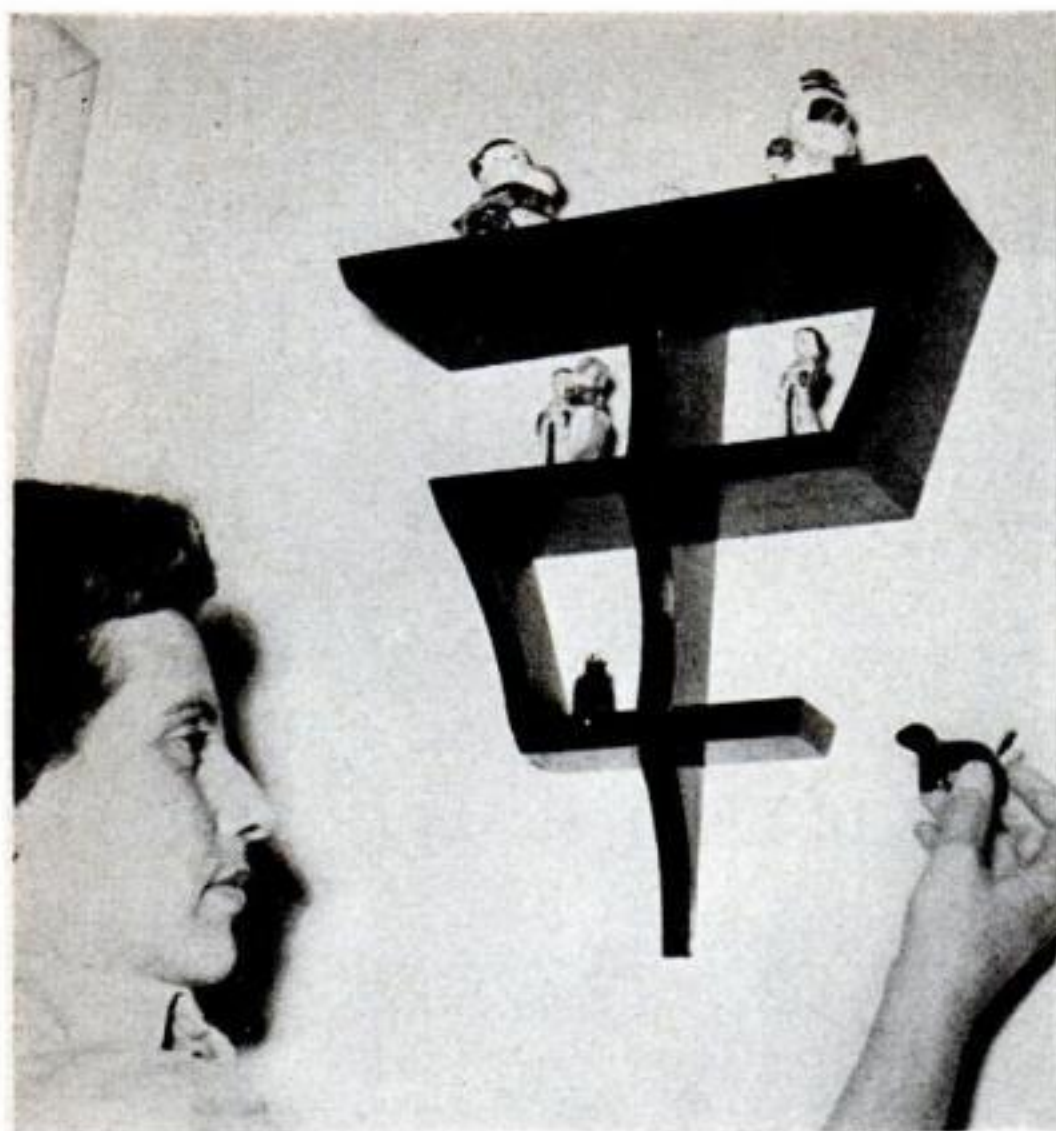


BETTER MEASURE WITH **LUFKIN**

TAPES • RULES • PRECISION TOOLS

**THE LUFKIN RULE COMPANY**  
**SAGINAW, MICHIGAN**





## How to Build a Whatnot for That Bare Space on Your Wall

HERE'S an offbeat little shelf with an Oriental flavor, attractive enough for almost any room in the house. The piece isn't really difficult to make, but it will test your craftsmanship.

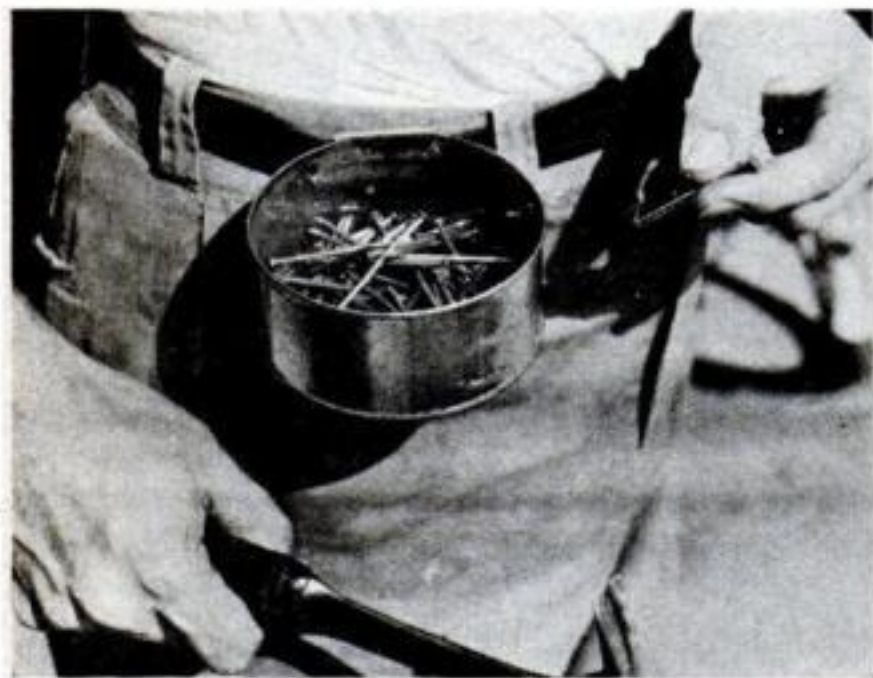
Use any clear  $\frac{3}{4}$ " wood. Shape the centered, vertical member from a piece  $14\frac{1}{4}$ " long, cutting three easy curves in the front edge as shown in the profile.

Cut slots in it and in the two lower

shelves for interlocking, egg-crate joints.

Plane a  $\frac{1}{4}$ " bevel on the end and front edges of all shelves, and bevel the ends of the two end pieces to fit between the shelves as shown. Assemble the pieces with glue and nails. Apply a black lacquer or other finish.

Two holes drilled in the back edge of the top shelf will serve to hang the shelf. —M. C. Anderson, San Lorenzo, Calif.



## Belt Can Keeps Nails Handy

SOLDER a strip of metal to the bottom of a shallow can, bend it up and solder it inside the top edge to form a belt clip, and you have a handy way to carry nails.



## How to Make a Marking Gauge

You can make a marking gauge by thrusting a snug-fitting dowel through an empty thread spool. Drill a fine hole near the end of the dowel for a sharp brad.

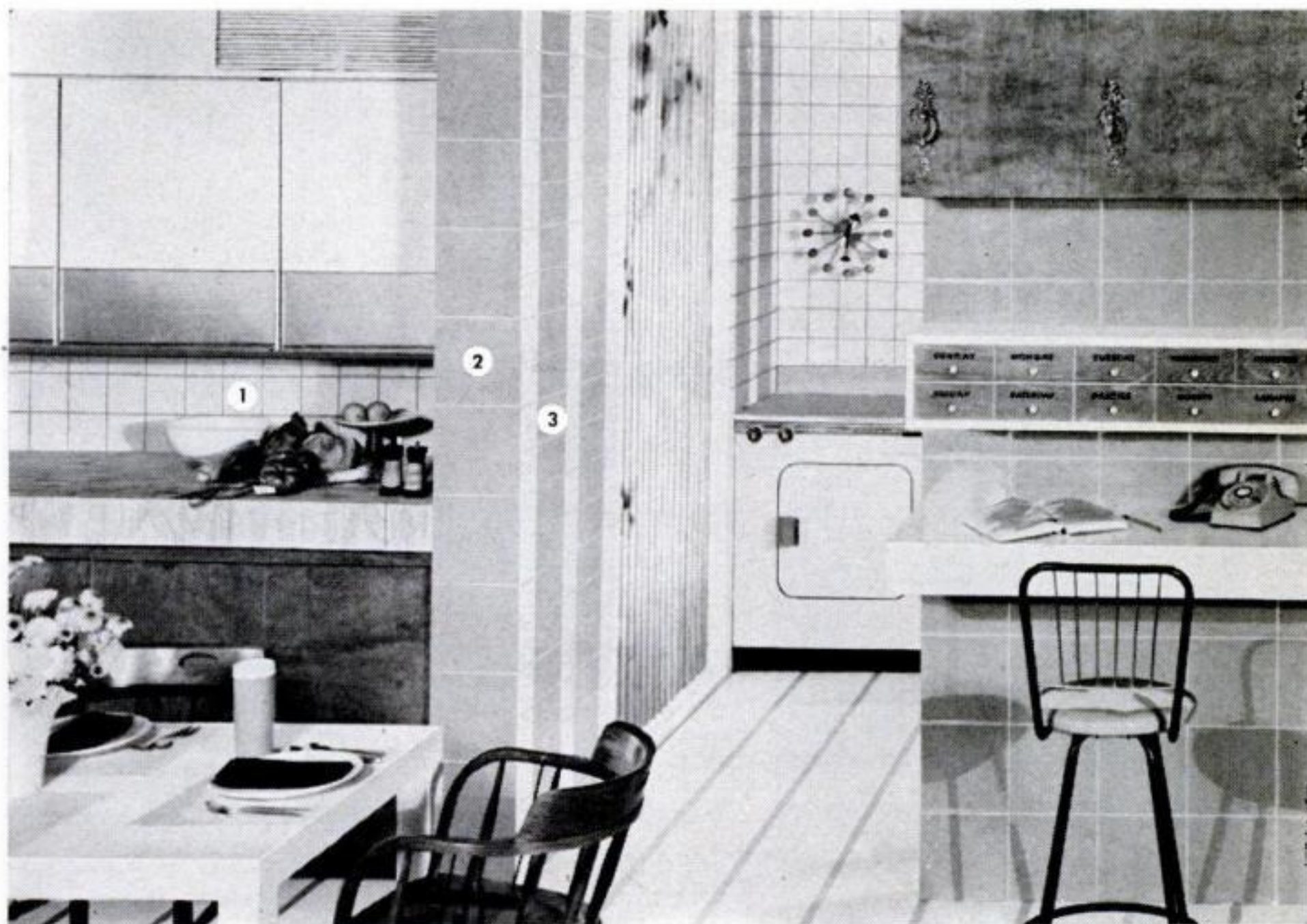


Decorate beautifully and economically  
with

# guaranteed PLASTIC WALL TILE



**It's guaranteed!** Certified dealers who display the emblem can guarantee that materials and installation conform to standards established with the U. S. Department of Commerce, C.S.-168-50, and are eligible for FHA requirements. Insist on the written guarantee!



Designs unlimited with: (1) Regular, (2) King-size, (3) Brick-shape

The **Luxury Look** of plastic wall tile made of Styron® turns old rooms into bright, new beauties . . . gives them a permanent look of luxury. This lustrous, moisture-proof tile comes in regular and king-size squares and smart new brick-shape . . . and

its cheerful, warm colors are styled to match or complement modern appliances and appointments like the translucent reinforced plastic panel shown above. Perfect for bathroom, kitchen, recreation room, hallways.

THE DOW CHEMICAL COMPANY, Midland, Mich.



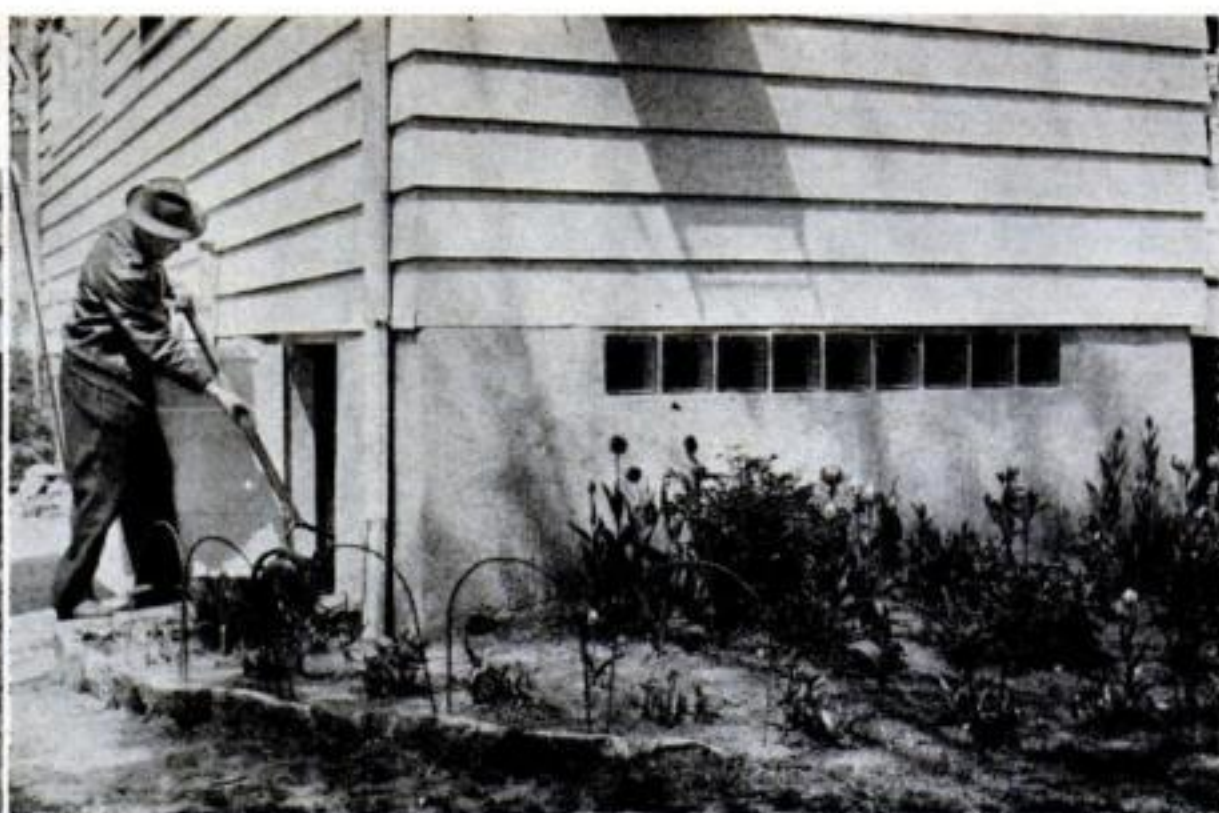
*you can depend on DOW PLASTICS*



SEPTEMBER 1956 275



## Crawl Space into Storage Space



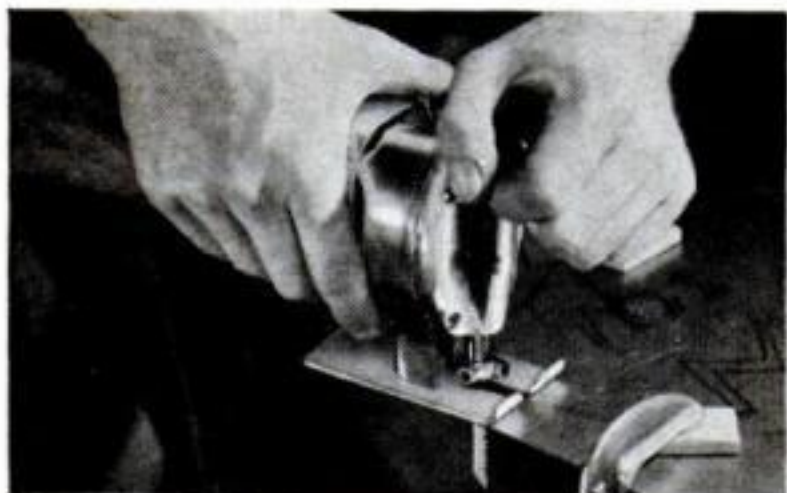
IS THERE a crawl space at least three feet high under a porch or other part of your home? Is it now enclosed by wood latticework?

Confronted by a similar situation, Ralph Wagner of White Plains, N.Y., ripped out the lattice, installed a wall made of concrete and glass blocks, fitted in a small wooden door and now has a convenient storage space for his lawn

mower, garden tools and various odds and ends of equipment.

A foundation trench was dug to a depth of two concrete blocks. Nine glass blocks were placed in a line near the top of the concrete-block wall to give light within the enclosure, and the gap above them was closed with a two-by-four. The concrete blocks were finished off on the outside with a stucco facing.

## B & D Jig Saw—chosen by professionals! ...complete with 5 different blades to cut most materials!



Zips through metal fast . . . powerful Black & Decker motor lasts for years.



Makes intricate cuts in floor covering, plastics, and compositions.



Makes pocket cuts without lead hole.



Compact, lightweight . . . shaped to fit palm. Guides easily.



Cutting line always visible; sawdust blown away.

**Only  
\$54.50**

including blades (coarse tooth, fine tooth, metal-cutting and knife blade).

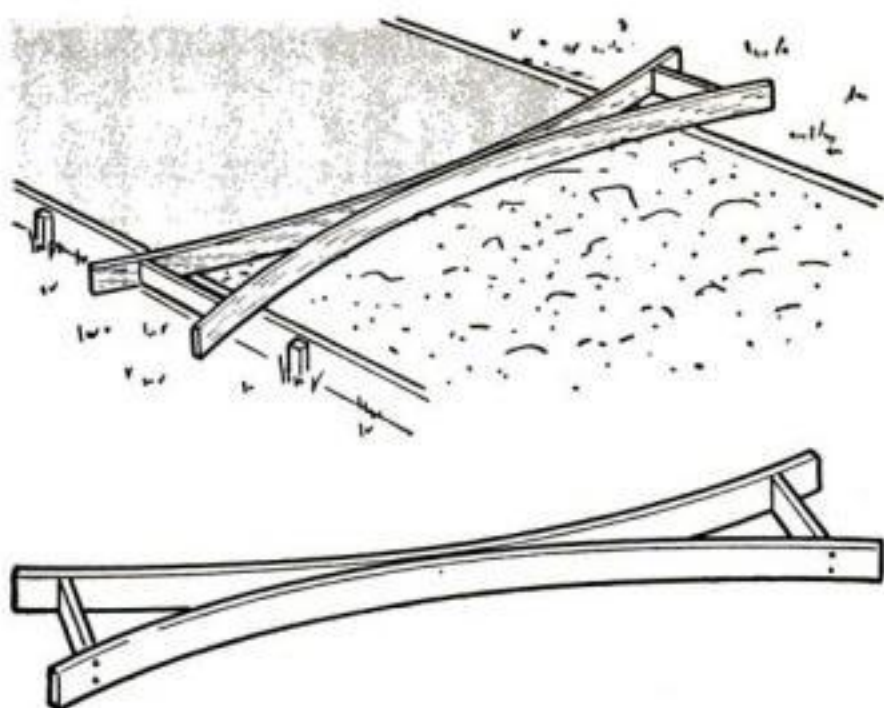
### Versatile, powerful, perfectly balanced...

Does the work of a jig saw, sabre saw, keyhole saw, plus most band saw operations. Plenty of guts to do the toughest, most intricate cutting jobs. Pays for itself on first home project. Powerful B&D-built motor assures rapid feeding speeds, longer life. Backed by Black & Decker's guarantee and nearby factory service. **THE BLACK & DECKER MFG. Co., Dept. S-96, Towson 4, Maryland.**

Look in the Yellow Pages under "Tools-Electric" for Nearest Dealer

**BD Black & Decker®**  
**PORTABLE ELECTRIC TOOLS**

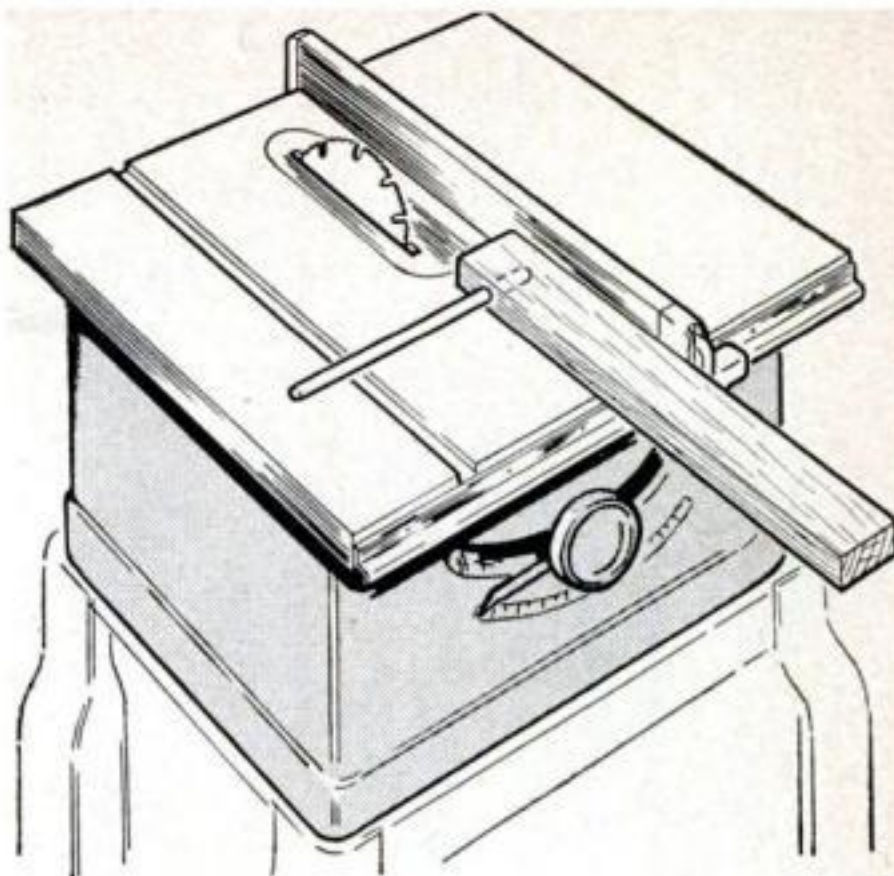




### Striker Board Steers Concrete

THINKING of laying a walk or doing a similar concrete job? This bowed striker board will give better results in smoothing the concrete than the customary straight one. The bow keeps the concrete running toward the center instead of spilling over the form sides.

Make the board by nailing together two straight boards at the center. Spring them apart at the ends and nail in wedges.—S. Clark, East Bradenton, Fla.



### Jig Cuts Dowels to Length

WHEN a number of dowel pins must be cut the same length, drill a hole in the edge of a scrap board as deep as the length required. Make the hole an easy fit for the dowels. Then set the table-saw fence to the width of the jig board.—Hugh Lineback, Stillwater, Okla.

## Get expert results every time with this Black & Decker No.44 Sander!

**Only  
\$52.50**  
includes  
sand paper



Prepare stairs for re-finishing. Sand right up to obstructions.



Refinish book cases, furniture—even antiques.

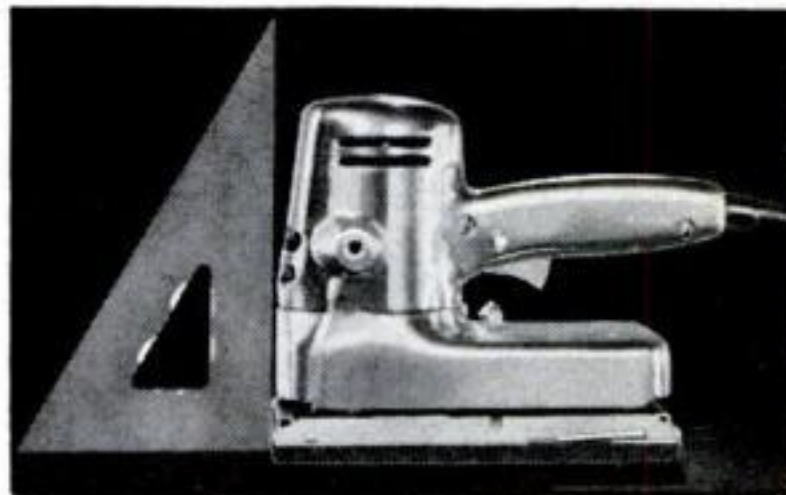


Smooth walls and plasterboard joints.

NOW . . . do ten hours sanding in an hour! Fast orbital action guarantees professional results the first time. Sands with, across or against the grain. No swirl marks, no uneven cutting, no chance to ruin the job. Satin-smooth finish every time on wood or metal. Perfect balance eliminates vibration for easy handling. Backed by Black & Decker's guarantee and nearby factory service. THE BLACK & DECKER MFG. Co., Dept. S-96, Towson 4, Maryland.

Look in the Yellow Pages under "Tools-Electric" for Nearest Dealer

**BD Black & Decker®**  
PORTABLE ELECTRIC TOOLS



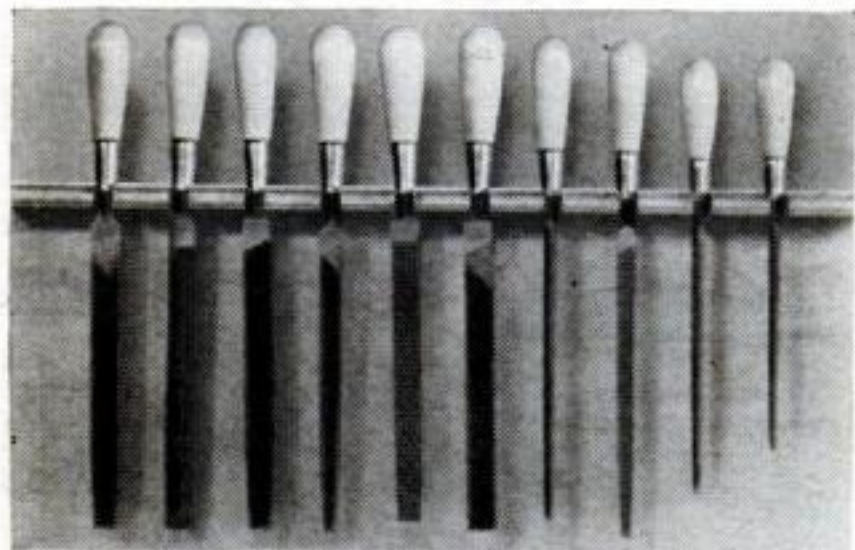
King size bottom plate. Extends beyond housing for close quarter work.



Exclusive paper holder stays open when changing paper.

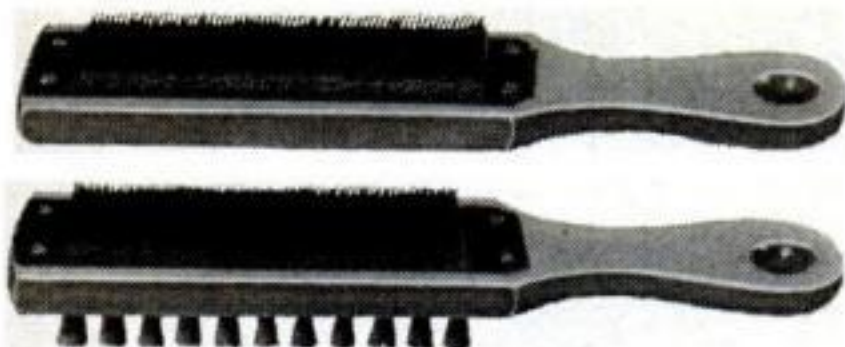


**Your Nicholson files are fine tools. Proper care will keep them in tiptop cutting condition**



*Simply constructed file rack is fabricated of strips of wood nailed to a plywood backboard. Ferruled handles make files easier to work, easier to store.*

Aside from storing your files separately to prevent dulling, you should keep them free of filings or chips that often collect between the teeth during use. After every few strokes, tap the end of the file on your bench to loosen chips. And always use a file card or file brush before putting the file away.



*File card, top, is for more general use. File brush, bottom, combining brush and card, is used especially on finer cut files. Overall length: 10 inches.*

Prefinished Nicholson metal ferruled file handles of seasoned hardwood and Nicholson file cards and brushes are available at your hardware dealer's. And if you need a new file... for any shaping or sharpening job... ask for a Nicholson or Black Diamond file.

Free 49-page book, "FILE PHILOSOPHY," is yours for the asking. It's loaded with information on proper selection, care and use of files and rasps.



**NICHOLSON FILE COMPANY**  
Providence, R.I.



(In Canada: Nicholson File Company of Canada Ltd., Port Hope, Ontario)

**NICHOLSON FILES**  
**A FILE FOR EVERY PURPOSE**

## Things You Never Knew About Your Pen

[Continued from page 167]

filling." (Example: "I'm too young to die—I still have 30,000 words left in my Paper Mate.")

The once-discredited ball point made a remarkable comeback. Five years later Paper Mate was selling 30 million dollars' worth of pens a year, 80 percent of all ball points sold in America.

To meet ball-point competition, pen engineers have invented all sorts of new gimmicks to overcome the liquid-feed pen's one obvious disadvantage: the need for frequent, messy refilling from ink bottles. Sheaffer's answer is the "Snorkel." The ink bottle is still needed, but at a twist of the pen's barrel a thin tube snakes out of the point to suck up ink. The penpoint remains dry. Waterman's new cartridge-filled pen, and others' models like it, load much like a ball point. You simply unscrew the barrel and insert a neat, transparent polyethylene cartridge full of regular liquid ink. The Parker 61, just introduced, is the first practical self-filler, forsaking levers and plungers altogether. Just dip it in ink and it drinks its fill automatically, by a reverse application of our old friend capillary attraction.

**Liquid lead.** Virtually all the old-line fountain-pen makers are now making ball points, too. And Parker and Scripto jointly have developed a "liquid lead pencil" that writes like a ball point. It produces an erasable line indistinguishable from ordinary pencil writing, holds enough liquefied graphite to write as much as a wood pencil five feet long, and bodes ill for the pencil-sharpener industry.

Which will win out—the ball point or the liquid feed? The pen of the future may resemble neither.

"The fountain pen of the future," Waterman's president, Robert D. Howse, told me, "will write for a lifetime without refilling. Super-concentrated dry ink, drawing its moisture from the air at the moment of writing, will make it possible to pack a century's supply of ink into a single one-inch capsule." **END**



**AT LAST**

# MAKE FLOORS, PATIOS, DRIVEWAYS AND WALKS LOOK DIFFERENT— USE **ROX**®



## TESTED FOR YEARS

Something *new* and *exciting* in decorating! Now Rox shows you how to design a shuffleboard, a hopscotch block and many other interesting or decorative patterns for porches, basement floors, driveways and patios. See booklet below. If you are tiling your floor, seal out moisture with Rox first. And remember . . . *Rox is guaranteed not to blister or peel.*

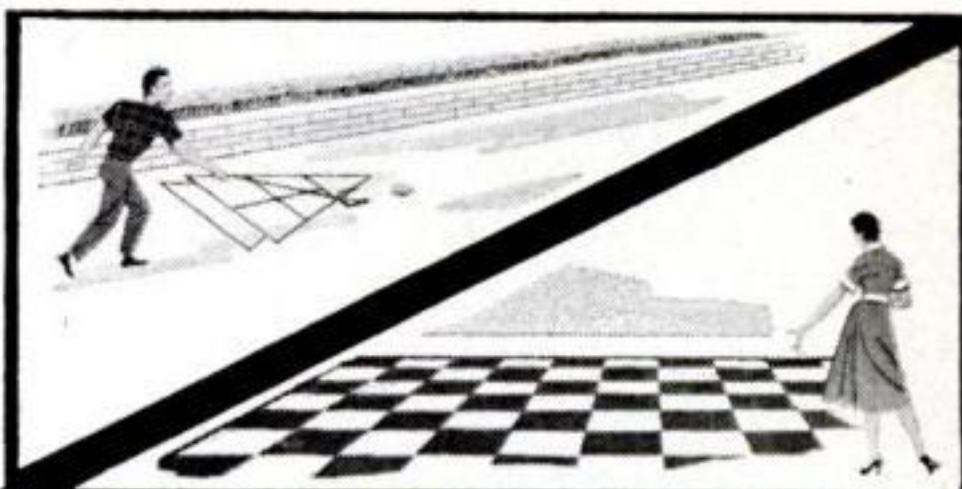
## BEAUTIFUL, DURABLE EXTERIORS WITH **ROX**

Masonry walls absorb tons of water—this water, if not kept out, can deteriorate masonry. Rox becomes part of the masonry surface itself as it seals this surface and protects against water even in gale driven rains. Rox adds distinctive exterior beauty.

## GUARANTEED TO PROTECT BASEMENTS AGAINST WATER LEAKAGE!

With Rox, you can convert your basement to a usable recreation room or workshop where tools are safe from moisture.

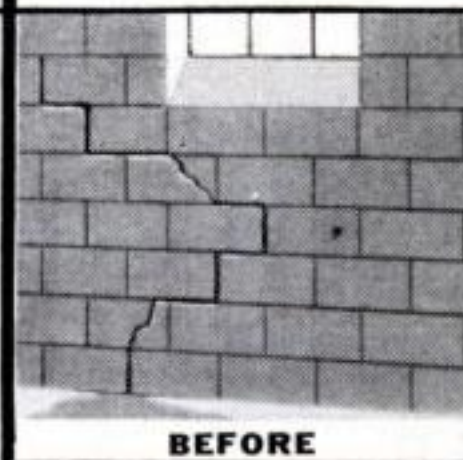
Rox is available in 5 colors and white at authorized Rox dealers in U. S. and Canada.



BEFORE



AFTER



BEFORE



AFTER



## Helpful Booklet Gives Game Diagrams and Beauty Hints

Illustrated in color to help you apply that professional decorator touch as you protect and beautify your basement and masonry surfaces. Diagrams and explanations to make shuffleboard and other games or decorative designs on floors, patios, driveways, walks, etc., and give new interest to masonry walls. Send 15c for handling. © ROX PRODUCTS CO.

# ROX PRODUCTS COMPANY

Dept. S7, Detroit 27, Michigan



## 3 Weldwood® Wizards for the perfect finishing touch!



Whether you prefer the light blond finish, deep mahogany or a painted job, insure the effect you want with a Weldwood finishing Wizard specialized for the job. Developed by United States Plywood, each meets a variety of finishing needs. Keep all three "wizards" on hand.

### Pre-seal fir plywood paint jobs with **WHITE FIRZITE®**

A must for painting fir plywood! As an undercoater, White Firzite is a sealer and primer in one — it seals the pores to help avoid grain raise and checking. And if you want a woodsy blond, pickled, or wiped effect, start with White Firzite to get a real "pro" job without that painty look. (For pastel tones, add colors-in-oil.)



### Pre-seal fir plywood stain jobs with **CLEAR FIRZITE**



Tames wild grain on fir plywood, to rival the subdued beauty of more expensive woods. Helps to prevent grain raise and checking. And for oak, walnut, or mahogany effects, simply add colors-in-oil — it's easy to get the effect you want.

### Get that modern natural finish with **SATINLAC®**

Satinlac emphasizes and protects the natural grain of any wood—hard or soft, plywood or solid lumber. Fast-dry for fast finishing...dries out of dust in 3 to 4 hours. Long lasting and a cinch to maintain.



Ask your hardware, paint, or lumber dealer about these Finishing Wizards...or mail coupon for **FREE** leaflets.

**UNITED STATES PLYWOOD CORPORATION**  
Box 525 — New York 46, N. Y. PS-9-6S

Send me leaflets on:

☐ White Firzite ☐ Clear Firzite ☐ Satinlac

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

## Doctors Endorse This Comic Strip

[Continued from page 174]

loons" and letters in the conversations.

The Morgan strip is popular because it is a blend of entertainment and helpful information, Dallis believes. Stressing the human side of medicine, it combines melodrama with the appeal of books on self-help and personality problems.

"People like to learn while they are being entertained," says the 44-year-old psychiatrist.

**His first try at a comic strip** was 21 years ago with a strip called "The Romance of Medicine." Dallis was still in medical school then, and had "something like Rex Morgan" in mind, he says. But syndicate editors wouldn't buy the idea until 1948.

Dallis applies the same educational-entertainment formula to the Judge Parker strip. He began writing "Judge" in 1952 after he had served for seven years as psychiatric consultant to juvenile and criminal courts in Toledo. This strip is drawn by Dan Heilman of Barrington, Ill., near Chicago.

**A relaxed and friendly fellow** who will mix you a drink or serve you a cup of tea, Dallis packs 190 pounds on his six-foot frame. He writes whenever he can. Sometimes this is in the evening while his three youngsters romp through the house with their dachshund, Teena. Or, in his study before dawn, he turns out scripts while the house is quiet.

He keeps the story running about three months ahead and works on it in batches of a week of strips at a time. Sometimes the story "goes by itself," and he writes the script for a seven-day sequence at one sitting. Other times it's rocky work and he needs several rounds with one batch. When the story resists him, he goes at it in longhand "to get a better grip." When it begins rolling away again, he takes to the typewriter.

**As soon as a batch is done**, he air-mails it to artist Bradley, who lives and works in Barrington, Ill. Bradley draws the main characters. Klinefelter puts in the "balloons" and lettering. Then these

[Continued on page 282]



*Now*

# -there's a Weldwood® Wizard for every gluing job!



Now there's a whole family of Weldwood Glues — four different types of adhesives — each designed to give you the easiest, quickest, surest answer to a particular gluing job. Be prepared by keeping all four of these "wizards" at your workbench.

## Bond instantly, permanently on contact with **WELDWOOD CONTACT CEMENT**

Great new way to put up plywood panels — without nails — or nail holes to finish. Perfect for applying Micarta and other plastic surfacing materials. 1001 uses for home, hobby, garage — Weldwood Contact Cement holds fast to any combination of wood, rubber, canvas or any other porous surface. 29¢, 40¢, 70¢ and larger.



## Make wood-to-wood joints stronger than wood with **WELDWOOD Plastic Resin GLUE**

Pros and hobbyists alike rate it America's most popular wood glue. Weldwood Plastic Resin Glue makes joints that are actually stronger than the wood itself, and keep growing stronger. Economical, easy-to-mix powder. Highly water-resistant, stain and rot-proof. 15¢, 35¢, 65¢ and larger.



## For all outdoor gluing—use **WELDWOOD WATERPROOF RESORCINOL GLUE**

So waterproof it exceeds government specifications for marine use! 100% reliable for boatwork; fixing sports equipment such as fishing rods; repairs in basements; making or mending outdoor furniture. Unaffected by climate, weather, water (even boiling, freezing and salt water!), mold, fungus, mild acids, alkalies, etc. ¼ pts., \$1.00. Also available in pts., qts., gals.



## Weldwood perfects a ready-to-use white glue— **WELDWOOD PRESTO-SET® GLUE**

Ready to use — sets fast — bonds like magic. So clean and easy to work with for scores of everyday household and hobby purposes. Use this Weldwood-perfected white glue to bond wood, cloth, paper, fabrics, etc., in any combination. Now in easy-to-use plastic dispensers. 19¢, 29¢, 49¢ and larger.



### Remember—

*There's a special Weldwood  
Wizard for every gluing job.  
Ask your lumber, paint or  
hardware dealer... or mail  
coupon for FREE leaflets.*

### UNITED STATES PLYWOOD CORPORATION

Box 525 — New York 46, N. Y.

PS9-6G

Send me leaflets on:

- ☐ Weldwood Contact Cement
- ☐ Weldwood Plastic Resin Glue
- ☐ Weldwood Presto-Set Glue
- ☐ Weldwood Waterproof Resorcinol Glue

NAME \_\_\_\_\_

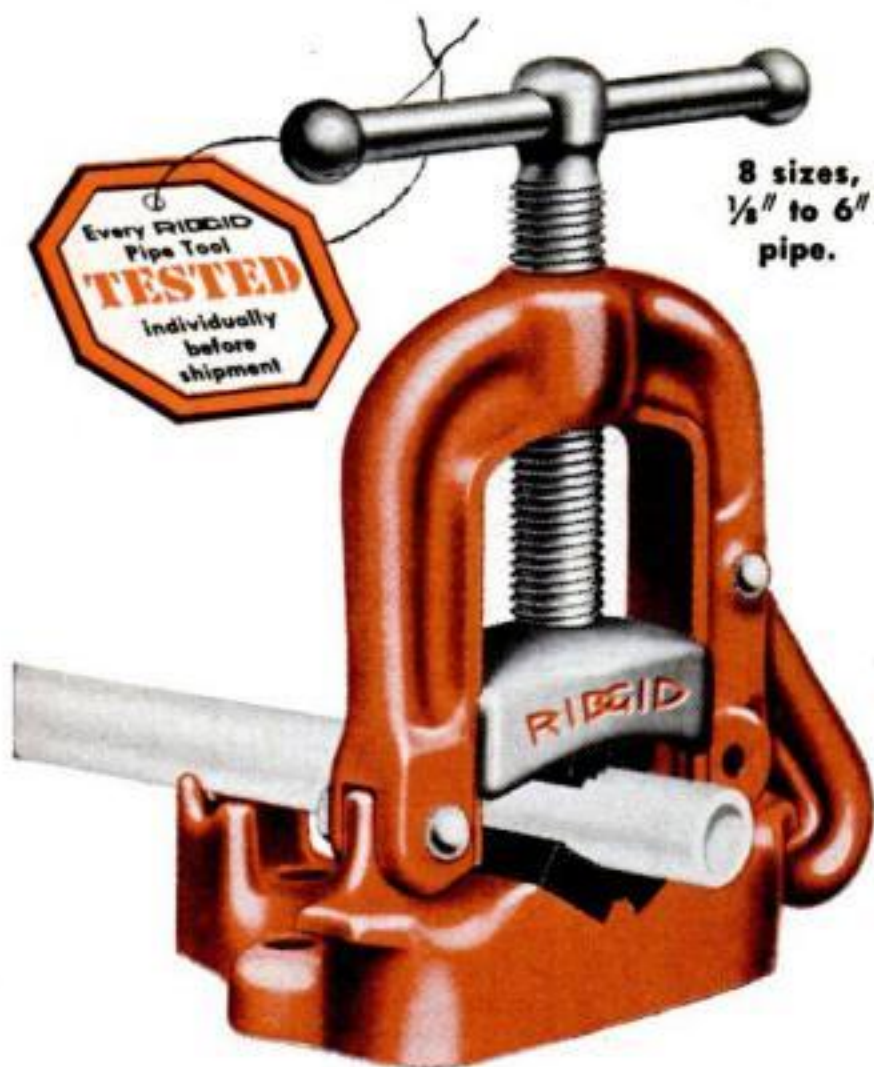
ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_



# Extra-Handy

## ...and tough all the way through!



# RIDGID

### the easy-to-use Bench Pipe Vise

Look at the *more* you get for your money . . . built-in pipe rest aids accurate threading, handy pipe bender . . . Long-Grip tool-steel jaws hold pipe firmly without chewing it up . . . yoke and base of special last-a-lifetime malleable . . . a bargain in quality!

**Buy your RIDGID Pipe Vise at your Hardware Store!**

**RIDGID Chain Bench Pipe Vise—5 sizes to 8" pipe.**



The Ridge Tool Company, Elyria, Ohio, U.S.A.

### Doctors Endorse This Comic Strip

[Continued from page 280]

strips go back to Toledo, where artist Edgington draws in the details—tables, doors, instruments, scenery, and occasional minor characters. The completed work all goes to Chicago for processing and distribution by the syndicate.

**Technical details** are checked carefully by Morgan's creators. When he pulls on a sterile rubber glove, Morgan does it in the prescribed medical manner. What he says about specific diseases and about general health problems is as accurate medically as Dallis can make it. Some of Morgan's most faithful followers are medical students and doctors.

Dallis begins each new Morgan adventure without any story plot and with only a general purpose for his hero; to expose a cancer quack, show how an alcoholic finds help, or explore the problems of a girl struck blind. Dallis follows no plan. "I like to be able to let the story go off in any direction, like rabbits."

**Dallis has a medical practice** of his own. He makes daily hospital rounds, keeps regular office hours from 9:30 to 5:30, and works in house calls on patients on the run.

He reads current fiction and medical journals (but no comics regularly). A Rotarian and a school board member, he also works to help elect politicians he favors, takes in the Kentucky Derby, lectures to medical groups over the country, and has even been known to promote prize fighters. Dallis was one of the prime forces in getting Archie Moore a chance to fight the now retired heavyweight champion, Rocky Marciano. His interest in Moore was partly responsible for the appearance of a boxer named Archer Moran in one Morgan episode.

**How does he find time** to do it all?

His prescription sounds simple enough: "Get yourself involved in situations where more will be expected of you. Then plan your work ahead, concentrate on one thing at a time, and keep relaxed."

The only son of a Greek immigrant

[Continued on page 284]



You'll read this level faster,  
easier, more accurately than  
any level you've ever used . . .

**EMPIRE**

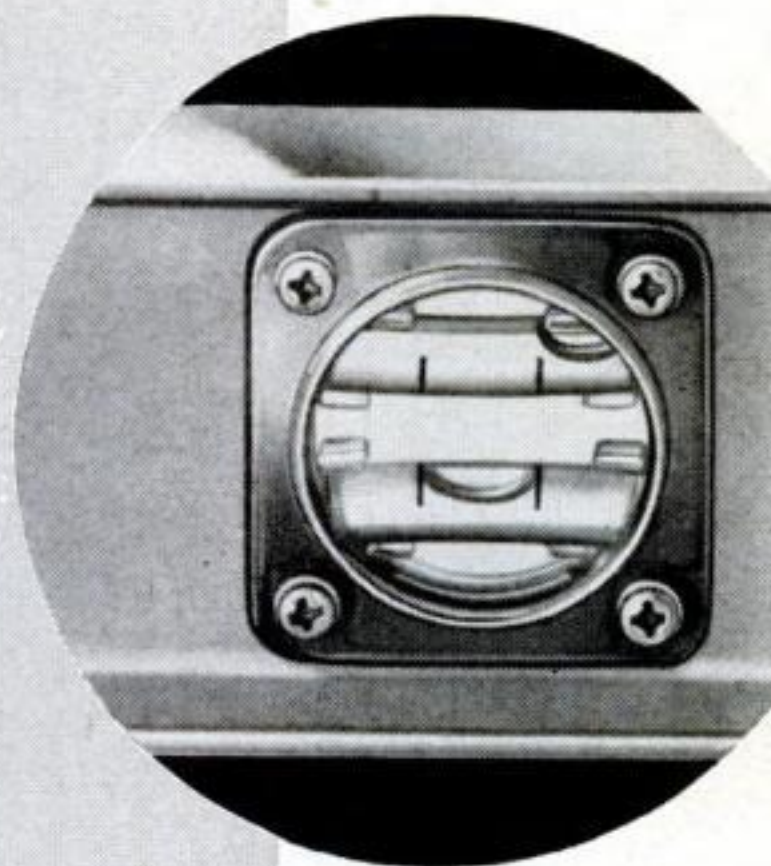
*Magnified  
Crystal  
Vision*

**LEVELS**

You get 300% GREATER VISIBILITY with new MAGNIFIED CRYSTAL VISION SIGHTS. Vials are mounted in new "snap-in" holders, between stereoptic magnifying lenses, for improved end-to-end viewing. This means more light, more ease and accuracy in reading, with NO SHADOWS, NO REFLECTIONS . . . nothing to obstruct your vision! You can read level or plumb from greater distances and wider angles, even in dim light. And there's no cement or adhesive to shatter loose or dry out.

**CHECK THESE FEATURES:**

1. 300 % MORE VISIBILITY
2. "SNAP-IN" VIAL HOLDERS (PATENT PENDING)
3. VIALS EXPOSED END TO END
4. STEREOPTIC MAGNIFYING LENSES
5. SHOCK-PROOF — SHATTER-PROOF MOUNTING
6. NO SHADOWS — NO REFLECTIONS
7. LUMINOSITY FACTOR VIAL FLUID
8. PRECISION REPLACEMENT UNITS
9. UNMOVABLE ADJUSTMENT



**"MAGNIFIED  
CRYSTAL VISION"**

The enlarged photo above shows the unique method of mounting the new Empire vials in crystal-clear *Magnified* shatter-proof lenses. Notice that vial ends are free for easy reading. "Snap-in" holders provide easy replacement of vials, if necessary, by removing four screws.

**TREAT YOURSELF to New  
Level Accuracy NOW . . .  
with EMPIRE Magnified  
Crystal Vision LEVEL!**

**Magnesium**

Model 152M, 24"	.....\$ 8.00
Model 152M, 28"	..... 9.00
Model 152M, 48"	..... 14.50
Model 152M, 78"	..... 24.00

**Aluminum**

Model 152A, 24"	.....\$ 8.00
Model 152A, 28"	..... 9.00
Model 152A, 48"	..... 14.50

See your dealer  
or mail this coupon:

EMPIRE LEVEL MFG. CO. Dept. PS  
10930 W. Potter Road  
Milwaukee 13, Wis.

Please send full-color catalog  
sheet featuring the new  
Empire Levels.

Name

Address

City, State

Name of nearest dealer

**EMPIRE LEVEL MFG. CO.**

*Tools for the Nation's Craftsmen*

Dept. PS, 10930 W. POTTER ROAD • MILWAUKEE 13, WIS.

SEPTEMBER 1956 283





**\$159.50 for 8" saw**

(less motor, guard, and extensions)

As your budget grows, add 4" jointer (\$59.00), 10" sander (\$16.00). Prices will vary in some areas.

## Doctors Endorse This Comic Strip

[Continued from page 282]

storekeeper, Dallis was born in Manhattan and reared on Long Island, N.Y., at Glen Cove. While attending Washington and Jefferson College at Washington, Pa., he also wrote news stories and drew gag cartoons for college publications. In 1933 he won the eastern intercollegiate middleweight boxing championship. By taking on part-time jobs as a grocery clerk, bartender, fighter, cook, and waiter, he earned money to study medicine.

**With a bachelor of arts degree** from Washington and Jefferson, Dallis went on to Temple University School of Medicine in Philadelphia where he met and

.....  
*The nice thing about paddling your own canoe is that it permits you to do the steering.*

—THE SIDEWALK SUPERINTENDENT

.....  
 married Sally Luddy, a nurse. After interning at Washington, Pa., he was at North Community Hospital on Long Island for a year and later in Washington, D.C., as resident obstetrician in Doctors Hospital. After a year of general practice near Temple, Pa., he went to Ford Hospital in Detroit to specialize in psychiatry.

He never forgot his comic strip idea.

When Dallis went to Toledo in 1945 as the new director of the city's mental hygiene center, he became acquainted with Allen Saunders, who was a member of the mental hygiene board. Saunders turns out two syndicated strips, Mary Worth and Steve Roper. He introduced Dallis to the Publishers Syndicate and to artists Bradley and Edgington.

**His comic-strip "practice"** remained a secret until 1952 when Morgan had become established as a physician of renown. Some of his patients don't know it yet. And if you ask the Dallis children what their father does, the answer is, "He's a doctor." And so he is.

His fictional creations bring him more income than his medical practice. But, like Morgan, Dallis intends to go on practicing—and crusading. **END**

**The mobile workshop  
 preferred by professionals**

**New YATES-AMERICAN**

1 Quickest change-over from saw to jointer to sander.

2 Compactness with capacity.

3 Quality features—patented feather-touch rip fence.

Take a cue from the craftsmen. See your Yates-American dealer today, or write for colorful catalog.

**Yates-American**

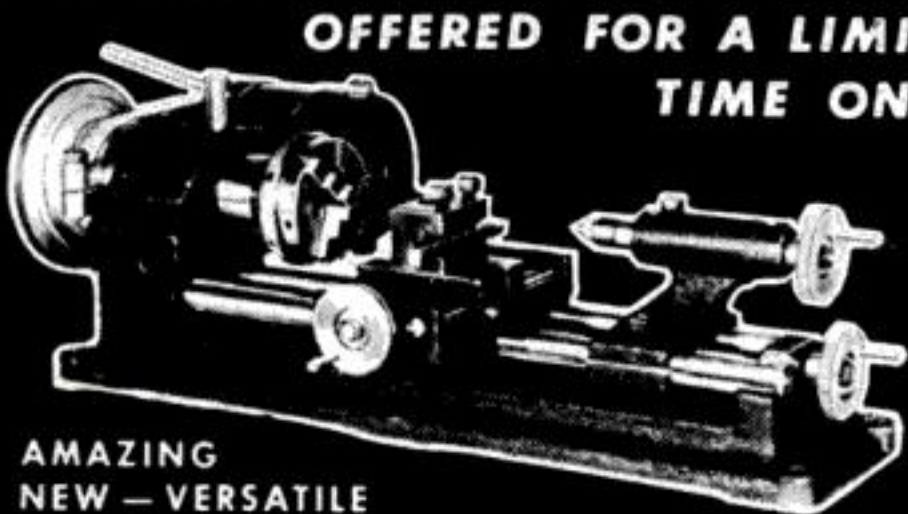
BELOIT, WISCONSIN

Department K, 783 N. Fourth Street

PT-12A



# HOME CRAFTSMEN • MODEL-MAKERS • HOBBYISTS • INVENTORS



OFFERED FOR A LIMITED  
TIME ONLY!

Save over 50%  
by ordering now!

AVAILABLE ON EASY  
INSTALLMENT TERMS

AMAZING  
NEW — VERSATILE

For machining ✓ METALS  
✓ PLASTICS ✓ WOODS

PRECISION BUILT...FOR PRECISION RESULTS

# UNIMAT®

10 IN. COMPLETE HOME  
POWER WORKSHOP

COMPLETE BASIC UNIT  
\$199.50 VALUE now **\$99.50**

## YOU CAN MAKE EVERYTHING WITH UNIMAT

Here's your chance to get years of pleasure and practical use while you work with UNIMAT—the unique and multi-purpose machine tool. UNIMAT is a complete miniature home workshop that enables you to make thousands of small articles from metal, wood and plastic! If you're the kind of man who gets real pleasure and satisfaction creating beautiful and useful things, UNIMAT is a must for you! With UNIMAT you can even make your own miniature gas and steam motors—model railroad equipment, fishing tackle, unusual trophies, knick knacks, chess sets, personalized costume jewelry, various models of your own design and hundreds of other fascinating hobby items! Or if you're the kind of man who's especially handy around the house, a man who needs a versatile and practical machine, UNIMAT is the ideal tool for you too! With UNIMAT you can do hundreds of small repair jobs—fix home and farm implements economically, avoid costly repair bills, repair vacuum cleaners, washing machines, rifles and guns, engine parts, farm equipment, cameras, duplicate unobtainable parts, develop your own inventions and gadgets or even earn money repairing—because UNIMAT is adaptable to so many interesting, practical and useful projects! UNIMAT more than pays for itself in a short time!

## PORTABLE AND COMPACT

The UNIMAT is a precision built lathe that quickly converts into a drill press, hand drill, polishing or grinding machine, tool grinding machine, milling machine, jig saw, threading machine, circular saw and indexing-dividing machine. UNIMAT's convenient compact size (all operating positions on just one base) enables it to be set up on any table. You can even use the handy wooden carrying case, included with the basic unit, as a work bench! Takes up as little space as a typewriter, requiring a working space of only 9" x 18". Fully operates on your ordinary 110 volt AC or DC house current. Just plug it in and you're all set to start your projects. It's simple to operate—the easy-to-follow instruction manual tells you how!

## HERE'S WHAT YOU GET WITH THE BASIC UNIT

The UNIMAT Basic Unit includes: 1. Precision lathe and all attachments necessary to set up; 2. Drill Press—3. Hand Drill—4. Polishing and Grinding Machine—5. Tool Grinding Machine—6. Milling Machine. With the Basic Unit you also get these 13 accessories Free: AC/DC Power Motor, with reduction pulleys (11 speeds—375 R.P.M. to 9200 R.P.M.), self-centering universal three-jaw "Cushman" lathe chuck with reversible jaws (abt 2 1/2" Dia.) 1/4" Drill Chuck, Pivoting Tool Holder, Grindstone Holder, Lathe Dog, Face Plate, 2 centers, Allen Wrench. Easy-to-follow instruction manual, all packed in sturdy wood veneer carrying case!

## ORDER THESE ATTACHMENTS WITH YOUR BASIC UNIT

7. The Jig Saw complete with 12 blades—8. Threading Attachment with 3/8", 1/2", 3/4" NC Thread patterns and formed tool bit for outward threads—9. Circular Saw complete with 2 blades—10. Indexing and Dividing Attachment complete with table and 3 clamps. All attachments can be ordered individually with the Basic Unit, or at any time in the future! All attachments mount quickly and easily on UNIMAT and increase its versatility even more!

## YOU SAVE 50% IF YOU ORDER NOW

UNIMAT previously sold for \$199.50! Now, for this limited time only, you can own a UNIMAT for this extremely low price of only \$99.50! This tremendous savings of \$100.00 is yours because all manufacturer's agents and wholesaler's profits have been eliminated. And you can make this sensational purchase on easy time payments!

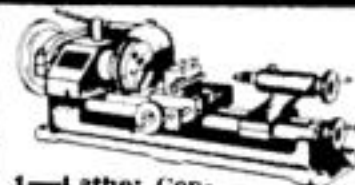
## EASY CREDIT BUDGET PLAN

Yes, for just \$49.50 down, and only \$10 a month or \$2.50 per week, until balance is paid, you can be the proud owner of UNIMAT, the machine tool that can be used in a thousand ways! Don't miss out on this sensational bargain. Take advantage of this unusual value while the offer lasts, choose either the monthly or weekly budget plan to suit your convenience. **There's no extra charge** for this installment payment service. This 50% savings offer cannot last long and may be withdrawn at any time! So don't delay—be sure to order your UNIMAT today! Send check or money order for immediate delivery. We will pay all shipping charges east of the Mississippi—slight shipping charge west of the Mississippi. If you are not satisfied within 10 days your money will be cheerfully refunded in full. Take advantage of this unusual offer today. Act Now! Send Coupon today!

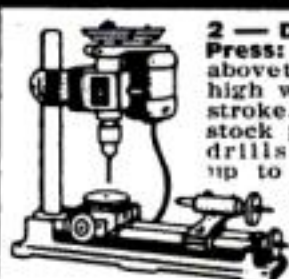
## DEALERS: FEW TERRITORIES STILL AVAILABLE!

AMERICAN EDELSTAAL [AMSTERDAM] INC  
UNIMAT DIVISION • 350 BROADWAY • NEW YORK 13 NEW YORK

## BASIC UNIT



1—Lathe: Center-height 1.42", distance 6.83". Turns between centers and in vertical position using chuck. Base: 14 1/4" x 3 1/2".



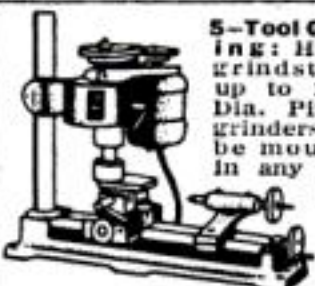
2—Drill Press: Chuck above table 5" high with 1" stroke. Headstock pivots, drills holes up to 1/4" at any angle.



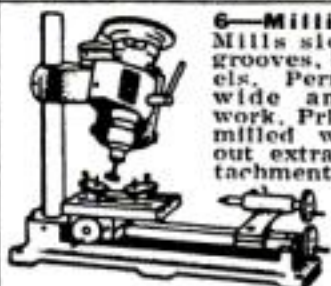
3—Hand Drill: Headstock and motor become hand drill with 11 speeds from 375 R.P.M. to 9200 R.P.M.



4—Polishing or Grinding: Polishing or grinding wheels on spindle can be pivoted outside of the bed for larger wheels.

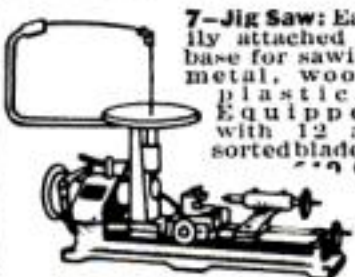


5—Tool Grinding: Holds grindstones up to 2.36" Dia. Pintype grinders can be mounted in any position.

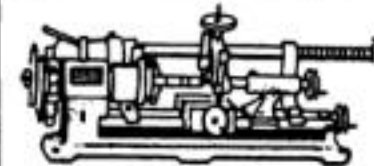


6—Milling: Mills slots, grooves, bevels. Permits wide angle work. Prisms milled without extra attachment.

## ATTACHMENTS



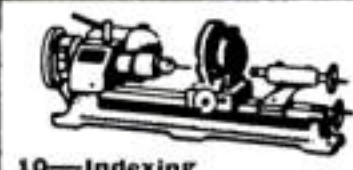
7—Jig Saw: Easily attached to base for sawing metal, wood, plastics. Equipped with 12 assorted blades.



8—Threading: Including Tool bit and 3 patterns for 1/4", 3/8", 1/2" NC threads. Other patterns obtainable. \$31.50



9—Circular Saw: Attaches easily and includes metal and wood saw blades. \$9.50



10—Indexing Dividing: Includes table and 3 clamps for cutting 2, 3, 4, 6, 8, 12 or 24 toothed gears. \$15.50

American Edelstaal (Amsterdam) Inc., Dept. PS-9  
350 Broadway, New York City 13, N. Y.

I am enclosing \$..... for payment as checked below

Items	<input type="checkbox"/> Full Payment	<input type="checkbox"/> Down Payment	<input type="checkbox"/> Monthly for 5 Mos.	<input type="checkbox"/> Weekly for 20 Wks.
<input type="checkbox"/> Basic Unit	\$99.50	\$49.50	\$10.00	\$2.50
<input type="checkbox"/> Jig Saw	19.00	10.00	1.80	.45
<input type="checkbox"/> Circular Saw	9.50	5.50	.80	.20
<input type="checkbox"/> Threading	31.50	16.50	3.00	.75
<input type="checkbox"/> Indexing and Dividing	15.50	7.50	1.60	.40

☐ Please send me FREE literature.

Name .....

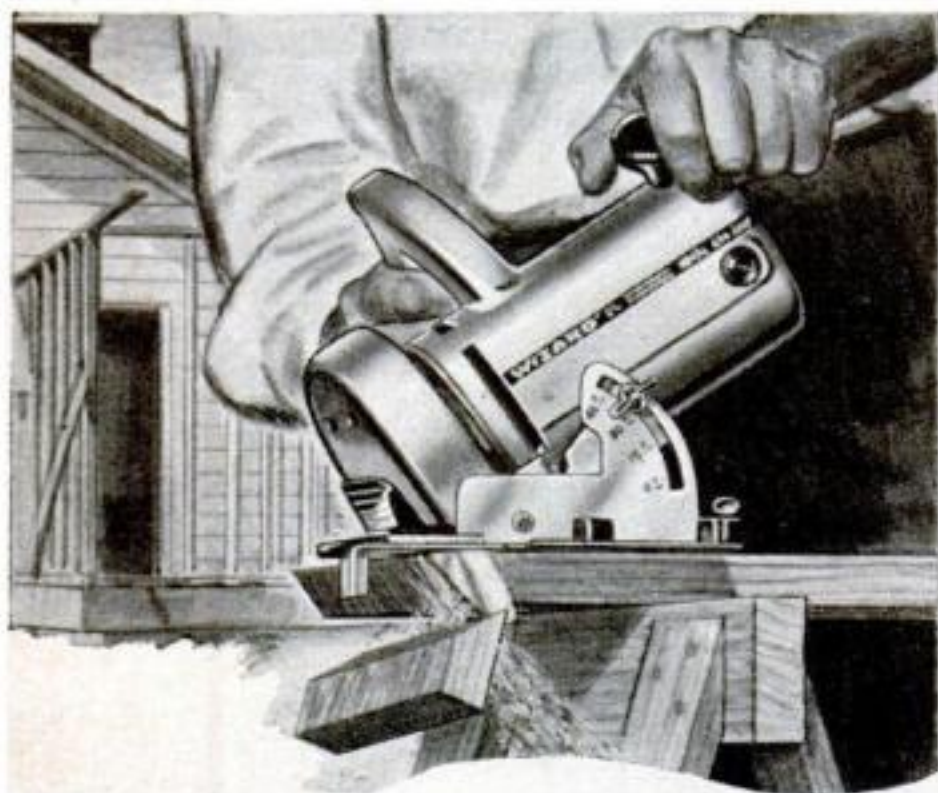
Address .....

City ..... Zone ..... State .....  
New York City residents add 3% City Sales Tax.





**WIZARD POWER TOOLS**  
*...built to make it and take it!*



**WIZARD 6 1/4" PORTABLE SAW:** Cuts 2x4 at 45°. Adjustable cut to 2 1/8". Powerful 7 amp. motor. Special slip-clutch prevents motor burn out.

With rip guide and safety guard . . . . . **\$39.95**

Other models \$29.95 to \$52.95

Team up with WIZARD for a faster, easier job. These rugged tools are compact, easy to handle, yet big enough for any home project. Check the complete line of power-packed WIZARDS at your nearby Western Auto Store before you buy *any* tool . . . then

**JOIN THE MILLIONS WHO KNOW THAT YOU GET MORE TOOL PER DOLLAR WITH WIZARD THAN WITH ANY OTHER NATIONAL BRAND!**

**WIZARD 1/4" DRILL:**

Powerful, 2 amp. motor. Geared chuck. Locking trigger. Accessories and kits are available. . . . **\$19.50**

Others \$12.50 to \$49.95



**Wizard**



OVER 400 ITEMS FOR THE WORKSHOP

Sold Nationally by

**Western Auto**

STORES AND ASSOCIATE STORES

NOTE: In some areas of the U. S., Hawaii, Alaska, and Mexico, prices slightly higher. Western Auto Associate Dealers own their stores, set their own prices, terms and conditions.

## Inside Our First A-Power Plant

[Continued from page 184]

metal tubes stacked upright in a circular checkerboard pattern, a little space between them. Each stands about six feet high and is six inches square. Packed together they form a cylinder six feet across. The uranium is inside them.

Tubes in some inner rows are different from others. A space in the form of a cross extends all the way down through the middle of them.

These tubes are called the seed assemblies. The uranium in them, in the form of plates, has been highly enriched. In other words, it contains much more of the easily fissionable type, U-235, than is found in the natural metal.

Into the cross-shaped spaces fit hafnium control rods which, moving up and down in the tubes, control the speed of the chain reaction.

All the other tubes hold bundles of slender, hollow rods—121 to a bundle—packed with pellets of the coffee-brown oxide of natural uranium. Surrounding the seeds, these tubes are called the blanket.

**The U-238 atoms** that make up most of the natural uranium in the oxide are not fissionable. But many are converted into plutonium, which is, by the bombardment of neutrons from the seed. For every 100 atoms of U-235 that are fissioned, the designers calculate that 80 atoms of plutonium will be formed from atoms of U-238, to help keep the chain reaction going.

When the Shippingport power station is operating at capacity, water will rush through this assemblage of tubes—the nuclear core—at the rate of 48,000 gallons a minute. It will act both as a moderator and a coolant. As a moderator it will slow down the neutrons released in the fissioning process—and slow neutrons are more efficient than others in making uranium atoms split.

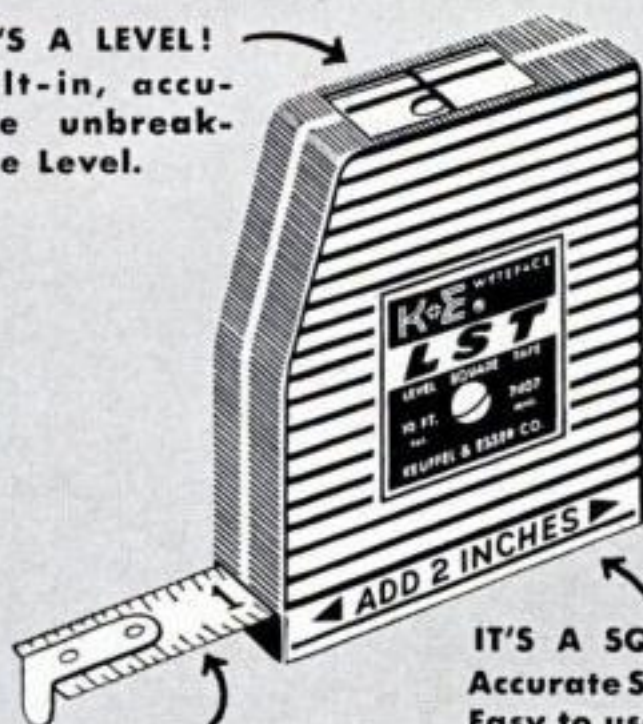
As a coolant, this same water will absorb part of the tremendous heat released when atoms fission. This will raise its temperature to 542 degrees F.

[Continued on page 288]



# it's NEW! it's ALL IN ONE LEVEL · SQUARE · TAPE

IT'S A LEVEL!  
Built-in, accurate unbreakable Level.



IT'S A TAPE!  
10 ft., replaceable WYTEFACE® Tape.

IT'S A SQUARE!  
Accurate Square. Easy to use.

**Only \$1.98**

at your hardware store



**KEUFFEL & ESSER CO.**  
Hoboken, N. J.



**LOOSENING,  
TIGHTENING or  
SPINNING...**

*YOU do it faster  
and easier with*



## BOX & OPEN END WRENCHES!

Smooth, long handles give extra leverage and firm, comfortable grip. Extra strong, thin-walled openings allow work in tight spots. Special analysis steel, beautifully finished.

Buy P&C's popular 6-piece set in durable, blue plastic kit with transparent pockets.

BUY YOUR TOOLS FROM THESE COLORFUL P&C MERCHANDISERS. Sold by more than 12,000 stores. Send 10c for tool catalog.

*...the best tools money can buy*



**TOOL CO.**

Dept. F3, Box 5926, Portland 22, Oregon, and Schiller Park Illinois.

# FREE PLANS



**IDEAS FOR  
YOUR HOME  
FROM  
NBC-TV  
HOME**

Smart new designs by leading architects show scores of worthwhile home-improvements you can make with fir plywood.



### Ideas for Built-Ins

Complete, fully-illustrated booklet contains plans for Sectional Storage Units, Built-in Range and Oven, Under Eaves Wardrobe and Desk.

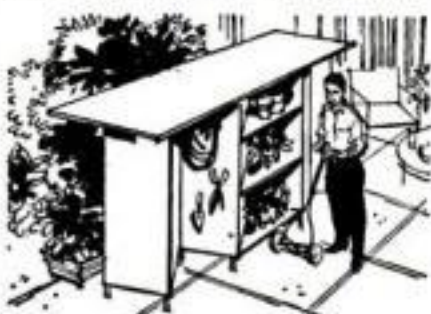
### Ideas for Furniture and Decorations

Detailed plans and step-by-step instructions for easy-to-make Platform Sofa, Chest and Tables plus remodeling ideas.



### Ideas for Outdoor Living

Plans and ideas for Garden Storage Cabinets, attractive Sun Sleds, Patio Wind Screens and Landscape Fencing.



**...and remember, whether you build,  
remodel or do-it-yourself**

*You can Afford Expensive Ideas  
with **Fir**  
**Plywood***

Your lumber dealer has sizes and grades for every job. Look for the DFPA quality grademark on every panel.



### MAIL COUPON FOR FREE PLANS

• DOUGLAS FIR PLYWOOD ASSOCIATION  
Dept. 11-S, Tacoma 2, Wash. (USA Only)

• Please send free plans booklets checked:

• ☐ Built-Ins ☐ Furniture ☐ Outdoor Living

• Name .....

• Address .....

• City ..... Zone ..... State .....

• .....





the plier you'll reach for  
times  
out of 10\*

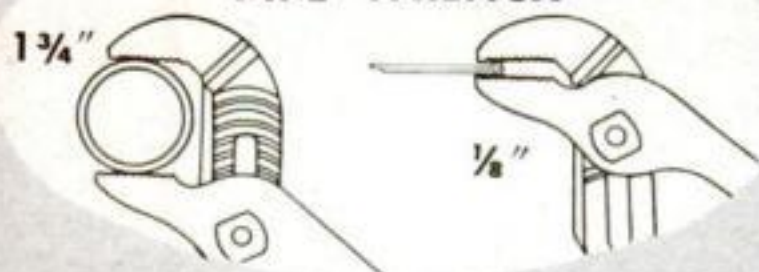


**CHAN NEL LOCK**

**No. 420**

\*because no other plier  
does so many jobs so well

**GRIPS LIKE A  
PIPE WRENCH**



Mechanics tell us that our Channellock No. 420 is the handiest plier of them all . . . the plier they reach for more often than any other. They like its all 'round usefulness . . . its pipe-wrench grip . . . its big jaw-opening . . . its streamlined design for hard-to-get-at jobs. And you'll like Channellock for the same reasons. Ask your hardware man for a Channellock 420.

**BE SURE IT'S A GENUINE CHANNELLOCK**



**CHAMPION DEARMENT TOOL CO. MEADVILLE, PA.**

## Inside Our First A-Power Plant

[Continued from page 286]

The superheated water won't turn into steam itself because it's under a pressure of 2,000 pounds to the square inch. (Hence the name for the type of atomic furnace used at Shippingport—pressurized water reactor, or PWR.) From the reactor vessel it rushes into a steam boiler, runs through bundles of tiny pipes surrounded by cooler water, and goes back to the reactor to be heated again. The cooler water absorbs the heat and, being under a pressure of only 600 pounds to the square inch, turns to steam. The steam runs the turbine.

The station's four steam boilers are paired up in two massive cylinders, 100 feet long and 50 feet high. Another great cylinder, 147 feet long, holds a pressurizing tank and other auxiliary equipment.

By utility-plant standards, the steam produced at Shippingport will not be terrifically hot, and some of it will turn to water, which would chew up ordinary turbine blades. Therefore the steam will run through separators that remove much of the water, and the turbine blades have a facing of stellite, an alloy so hard that it can be used in metal-cutting tools.

The most expensive part of the core, oddly, is not the uranium but the stuff that covers it—a dull-gray alloy of zirconium metal. Unlike metallic uranium, the zirconium alloy is highly resistant to heat and corrosion.

Shippingport's \$10-12,000,000 load of fuel is designed to give it 3,000 hours of full-power operation. Since the plant will run well under full capacity for a time, this first load should last for several years. Even when the chain reaction runs down, the AEC can reclaim part of the core by chemical processing.

In case of trouble, or for testing, the operators must be able to lift out sections of the nuclear core. And at the end of its useful life they must remove all of it. So a water-filled sectional canal four stories deep and 110 feet long will extend away from the reactor vessel. Riding high above the canal will be a 125-ton

[Continued on page 290]



**Famous Antique Shop**  
uses and recommends  
**Klean-Strip Paint Remover**

KLEAN-STRIP, the non-inflammable paint remover, is used exclusively by Leonard's Antiques, Seekonk, Mass., to restore the beauty of wood heavily coated with paint and varnish. L. C. Leonard reports "KLEAN-STRIP has far exceeded expectations . . . and exceeded results obtained with other removers used. We are sure it's the best."

KLEAN-STRIP works best for any refinishing job. It's fast-acting, easy to use, needs no neutralizing or afterwash. Buy it when and where you buy paint.



**THE KLEAN-STRIP CO., INC.**  
2340 S. Lauderdale, Memphis 6, Tenn.

**NON-INFLAMMABLE**  
**KLEAN-STRIP**  
"PEELS OFF PAINT"

**UTICA'S MAGIC BUTTON**



**makes the difference**

UTICA's brand new SELECT-O-LOCK adjustable wrench gives you two tools in one. Push the magic button—the wrench is locked—just like an open end wrench. Pull the magic button, it's a conventional adjustable wrench.



**Push—it's Locked!**

**Pull—it's Unlocked!**

See the new SELECT-O-LOCK, No. 93, adjustable wrenches in 6-8-10 and 12 inch sizes at your hardware dealer.

\*PATENTED



**THE HALLMARK OF QUALITY**

**Make BIG MONEY**  
with this combination  
**a.c. welder-a.c. power**



Welds or runs tools, lights, motors, etc.

**A REAL PROFIT MAKER**  
for emergency repair jobs

**TWO machines in ONE**



"Husky Boy"

**200 Amp. AC Welder-AC Power Combination**, four cylinder air-cooled engine. Furnishes 200 amperes of welding current and 5,000 watts of AC power alternately. Easily mounted on your truck or trailer for quickly getting to where it's needed on a moment's notice.

"Husky Boy" 200 amp. welder driven by a 2 cylinder air-cooled engine. Perfect for outside or around the shop welding. Handles the big pay jobs.



AC Power-AC Welding

**AC Power or AC Welder**. An excellent dual purpose combination available in 200 and 300 amp. welding sizes. Can be belted or coupled direct to your own gas engine.

**Transformer Type AC Welder 250 amp.** A real welder for production and repair work in shops that have only single phase power available.



AC Transformer

Investigate these **BIG MONEY MAKERS** today



"Bantam Champ"

"Bantam Champ" 250 amp. electric motor driven welder for general shop use. Ideal where compactness and low investment are prime considerations.



**Hobart School of Arc Welding**  
Learn arc welding quickly by actual on the job experience at the non-profit Hobart Trade School. Complete or partial courses.

**Modern Arc Welding Lessons** 200 pages. Fully illustrated. Learn practical arc welding in your spare time. . . . . Only \$1.00.



**Clip this COUPON and mail today**

**HOBART BROTHERS CO., BOX P-96**  
Troy, Ohio, Phone 21223

"One of the world's largest builders of arc welding equipment."

**HOBART BROTHERS CO., BOX P-96, TROY, OHIO**

Please send additional data on items checked:

- ☐ "Husky Boy" ☐ AC Power-AC Welding  
☐ AC Transformer ☐ "Bantam Champ"  
☐ Hobart Welding School ☐ Welding Lessons, \$1.00

**free!**

Welder's Vest Pocket Guide

NAME \_\_\_\_\_

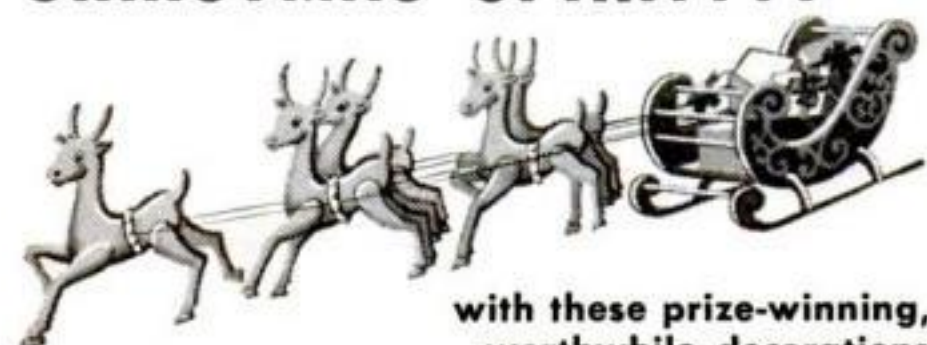
ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_





## CHRISTMAS SPIRIT...



with these prize-winning,  
worthwhile decorations

Colorful, almost life-size — these cheerful figures are completely in the Christmas spirit. Your guests and neighbors admire Santa, the quiet beauty of the Madonna, the Nativity Scene, or any of the other bright outdoor decorations.

You add your personal touch by making your own arrangement. Simply buy the patterns with the coupon below, or the unpainted figures from your lumber dealer. All figures are built with full-size Easi-Bild® Patterns — which specify each material, including 3/8" Homasote Insulating-Building Board.

Your dealer will furnish you with the Homasote Board in the size specified by the pattern. Or you can buy the figure already cut out with the painting pattern attached. To cut out the figure yourself, all you need is a key-hole saw.

Each figure has unique possibilities . . . a Madonna Greeting Card beside the walk, the Jolly Snowmen Greeters on the front door, or Santa and his five reindeer and sleigh on the front lawn. Your family, club or school group can enjoy a satisfying, creative project. Users of Easi-Bild Patterns tell us every year about the community Christmas competitions and prizes, and the many compliments they receive.

Get your cut-out figures, with Easi-Bild painting pattern and complete instructions attached — or the plain Homasote and pattern — from your local Homasote Dealer. It's real fun making your own Christmas decorations — easy, too — and you always get a professional job. To order patterns alone, or to find the name of your Homasote Dealer, mail us the coupon.

\*T.M. Reg. Easi-Bild Pattern Company

### MAKE it at home...with HOMASOTE

HOMASOTE COMPANY, Dept. J-4, Trenton 3, N. J.

I enclose.....for which send the following patterns:

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Santa Claus—35¢   | <input type="checkbox"/> Reindeer—35¢                         | <input type="checkbox"/> Choir Boys—50¢        |
| <input type="checkbox"/> Jolly Snowmen—35¢ | <input type="checkbox"/> Sleigh—50¢                           | <input type="checkbox"/> Nativity Scene—\$5.00 |
| <input type="checkbox"/> Madonna—50¢       | <input type="checkbox"/> Send name of nearest Homasote Dealer |  |

NAME.....

ADDRESS.....

CITY.....ZONE...STATE.....

### Inside Our First A-Power Plant

[Continued from page 288]

crane. Special tools dangling from this will grasp the core or any part of it and swing it through the water to a spot in a heavily shielded chamber for examination or storage.

Most of the money for this trail-breaking venture is being paid by the Government—some \$85,000,000, much of it for research and development.

But Duquesne, too, is putting up a pretty penny—an estimated \$30,000,000. This includes operating costs over a five-year period, and these will be somewhat higher than in the ordinary plant.

What will Duquesne get for its money?

"**Know-how,**" answers Robert B. Donworth, vice-president in charge of engineering and construction.

Thirty or 40 years ago, Donworth explains, it took several pounds of coal to produce one kilowatt-hour of electricity. "We've got that down to well under one pound, but we have gone nearly as far as we are likely to in conventional plant economies.

"We want to find ways to prevent the cost of electricity from going up. The best possibility, over the long pull, is offered by atomic power."

The pull may indeed be a long one. Donworth estimates that in a conventional plant electricity can be produced for about 2¼ mills (a touch under a quarter of a cent) per kilowatt-hour—for coal, labor, maintenance. At Shippingport, fuel alone will cost 3.9 cents per kilowatt-hour, and operating costs add three-tenths of a cent.

But this is for power produced from the first load of fuel. Because of the experience gained from making this one, Shippingport's second core should cost less, last longer and deliver more power. Other costs should go down, too.

Duquesne officials promise that there will be no trade secrets about what is learned. Says Philip A. Fleger, chairman of the board: "Shippingport will be a university, so to speak, for the electric-power industry."

END



# \$500 FOR YOUR OLD HAND SAW OR POWER SAW!

ANY MAKE OR CONDITION!



Your old hand or power saw (any make or condition) is good for a \$5 trade-in allowance towards purchase of the amazing new Syncro "210" True-Cut Jig Saw at your tool dealer! This husky, massive, precision-built saw has big 15" throat, 100 sq. in. table—cuts 1 3/4" wood accurately—curved or straight! Powered with famous Syncro Reciprocating Motor—greatest achievement of power research. No belts, cams, gears. No rotating parts to wear out. Motor guaranteed against burn-out during ownership.

See your tool dealer today—trade in your old hand saw and save \$5! Offer ends Dec. 31, 1956.



MODEL 210  
LISTS:

\$2995

Less \$5  
Trade-in  
or . . .

\$2495

\$ FOR \$ OUT-CUTS ALL OTHERS

## SYNCRO

210 JIG SAW

**SYNCRO CORPORATION • DEPT. 2-66 • OXFORD, MICHIGAN U.S.A.**  
**WORLD'S LARGEST MANUFACTURER OF RECIPROCATING MOTORS**



Courtesy of Parents' Magazine

## MORE SPACE!

BUILD IT IN EASILY, ECONOMICALLY WITH  
CABINETS OF WESTERN PINES

Make your kitchen more useful, more beautiful with handsome Western Pine cabinets. It's *easy* because of the extreme workability of the Western Pines. And it's economical, too!

Your joy for the extra space will be heightened by the rich grain, texture and color of these well-seasoned woods. They are easy to maintain and take all kinds of paint, stain or varnish. Or they can be waxed then rubbed to a silken, natural glow.

Whether you do it yourself or have it done, you'll be happy you chose Western Pines. See your lumber dealer for details.

## The Western Pines

Idaho White Pine

Ponderosa Pine

Sugar Pine

and these woods from  
the Western Pine Mills

WHITE FIR • INCENSE CEDAR

RED CEDAR • DOUGLAS FIR

ENGELMANN SPRUCE

LODGEPOLE PINE • LARCH

are manufactured to high standards of seasoning, grading, measurement

Today's Western Pine Tree Farming Guarantees Lumber Tomorrow

Bright new ideas in FREE booklet

"FRIENDLY HOME IDEAS IN WESTERN PINE." 86 photographs, many in color, show you building, decorating and remodeling ideas featuring the cheerful Western Pines. Write to WESTERN PINE ASSOCIATION, Dept. 513-L, Yeon Bldg., Portland 4, Ore.





every man aboard, air-conditioning, recreation rooms, a fully equipped hobby room, a swimming pool, and an elevator.

**Bigness** doesn't always make for comfort, though. At sea, supertankers have shown a tendency to be wet, plowing through waves when loaded rather than riding over them. In foul weather this turns them into a series of floating islands, with the fo'c'sle, bridge, and poop decks sticking up, and the tank decks awash. Catwalks connect the after house and bridge on most of them, but to go all the way forward a seaman generally has to struggle along slippery steel deck plates holding on to an overhead lifeline and praying. Since mess rooms are aft, bridge personnel have long and often wet hikes to chow.

**The long days at sea** (the *Petrolore* takes more than a month to bring oil from the Persian Gulf to the U.S.A.) aren't lazed away. Besides standing watch and maintaining machinery, there's

always corrosion to be fought. Modern tankers have dehumidifiers to help protect the insides of tanks, but the exteriors still have to be cared for with scrapers, wire brushes and paint pots. On the *Petrolore*, there's nearly an acre and a half of main deck alone.

The complement of the *Petrolore* is amazingly small, only 45 men. Several other supertankers carry more than 50, but even that is low compared to the 40 or so on the now-small 16,000-tonners built 10 to 15 years ago. The extra men are not for watch standing but to maintain the ship. The 83,500-tonners will sign on only another four to six men, again to take care of the added surface.

**Oil is a tricky cargo** to handle, as several accidents have proven. When it's being pumped aboard at the rate of thousands of gallons a minute, valves have to be opened and shut with split-second accuracy. To keep the ships on

[Continued on page 294]

# Can't Break!



*Estwing*

## SPORTSMAN'S AXE

A MUST FOR HUNTING AND CAMPING

\$5.85 COMPLETE WITH LEATHER BELT SHEATH

1. Head and handle forged in one piece of fine tool steel.
2. Leather cushioned grip can't loosen or come off.  
**Lasts for life of head.**
3. Has thin, easy-cutting edge; easily sharpened blade.
4. Always in perfect condition in all exposures and climates.
5. Guaranteed to give greatest value and satisfaction.

Write Dept. PS-9 for FREE Bulletin

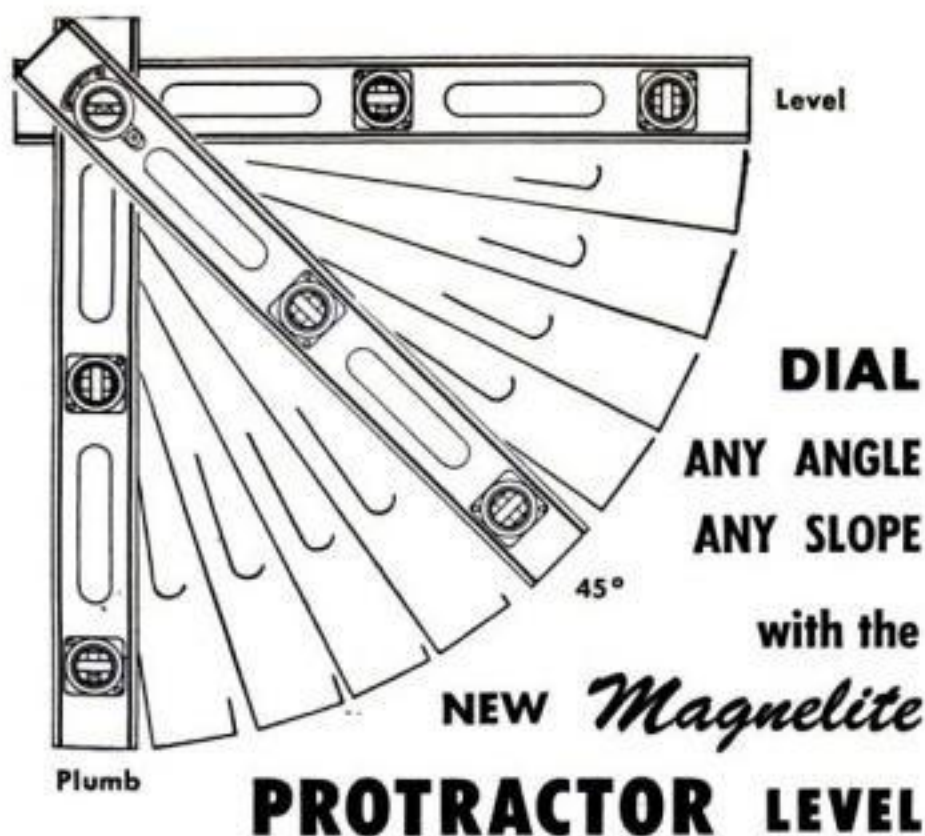
Your Dealer Also Carries  
ESTWING Uranium Picks

**\$4.75**



**ESTWING MFG. CO., ROCKFORD, ILL.**





### LIGHTWEIGHT, UNBREAKABLE MAGNESIUM

NOW, Magnelite... the original extruded magnesium I-beam level... is available with an exclusive protractor dial allowing you to measure or set any angle from 0° to 90°... with a "quick" setting for 1/4" per foot drop. Plumb and level positions feature replaceable vial assemblies with easy-to-read, cat's-eye, pyrex vials behind extra-large glass windows. A highly accurate tool of professional quality, in your choice of 5 sizes... 18, 24, 28, 30 or 48-inches.

Prices start at **\$6.60**

ASK YOUR DEALER, or write

**J. H. SCHARF MFG. CO.**  
6120 Binney Omaha, Nebraska



**SIoux**  
**FLAT SANDER**

## Persuasive with Abrasive

Oscillating, orbital action at 4,000 cycles a minute produces the finest finish in a hurry on any material which you would sand by hand.

Better built by SIoux. No. 1850... **\$47.80**



SANDS WOOD  
SATIN SMOOTH



SANDS JOINTS  
SMOOTH



SANDS RUST  
OFF METAL



Write TODAY for more information



**ALBERTSON & CO., INC.** • SIOUX CITY, IOWA, U.S.A.

**BUY** at less than wholesale  
direct from **MASTER MECHANIC** factory!

## MASTER MECHANIC Portable Generators



give you  
**INSTANT  
POWER**  
where  
and when  
you need it!

**WE MAKE ALL  
SIZES UP TO  
25,000 WATTS**  
Write for  
details



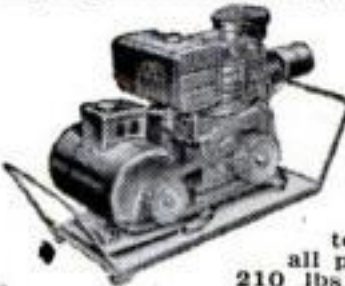
(Item 24)

### 600-700 Watt Plant **PUSH BUTTON START**

115 v. 60 cyc. AC Powered by a rugged 2.2 HP. easy starting Briggs engine. No wiring necessary; just plug in and operate. Plenty of current for any oil burner, freezer, brooder, emergency lights, etc., which require up to 700 watts. Ideal for television and radios. Complete with voltmeter and built-in winding to charge 6 v. auto batteries. (Item 24) Wt. 75 lbs. Easily fits in car trunk. Be prepared if storm knocks out power lines. Reg. \$275.

**\$143.50**

**1000-1200 Watt Plant** (Item 45) same as Item 24 but larger generator and engine with 50% greater output. **\$199.50**



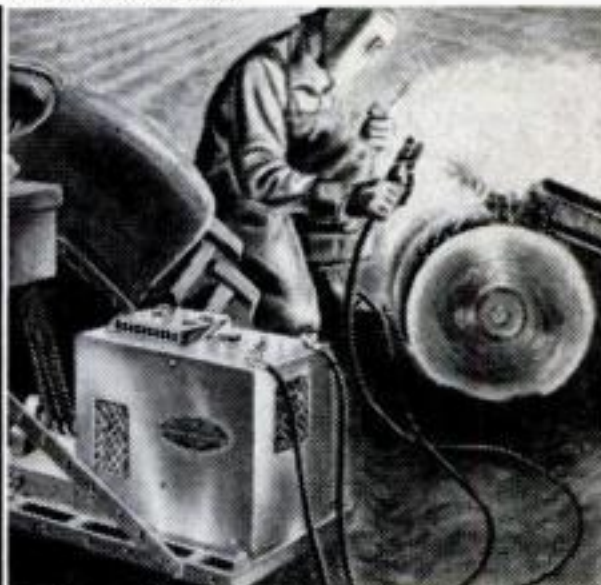
### GIANT 2000-2500 WATT PLANT

110-120 v. 60 cyc. AC. absolutely the best made—exclusive dynamically balanced armature; heavy windings develop up to 5000 watt overload for motor starting. Skid mounted—portable. Powered by an easy starting Briggs or Wisconsin 6 HP engine—complete with all accessories; engine easily disconnected for other uses. Big outlet box, voltmeter, no wiring necessary. Ample current for all purposes. Factory warranty. (Item 31) Wt. 210 lbs. Regular price \$585.00

**\$299.50**

Same plant with electric self starter (Item 179) **\$359.50**  
Generator only and control box (Item 31a) **\$169.50**  
**DUAL VOLTAGE** 110-220 available on any of above models (Item 31, 179, or 31a) for \$28.00 additional.

**EARN  
BIG MONEY!**  
• welding  
• cutting  
• brazing  
Save expensive  
repair bills  
**MASTER  
MECHANIC'S  
DC ARC WELDERS**  
Weld anything  
up to 2" Plate



Built in our own factory these big, industrial capacity, portable welders provide terrific performance, yet are sold direct-to-you at bedrock factory prices—hundreds of dollars less than you'd expect! Senior model (shown above) has high capacity DC welding unit—easily welds any thing up to 2" plate using 1/16" to 1/4" rods. Built-in stabilizer and cooling system makes arc easy to strike and hold. Dual control rheostat provides low heat soldering, brazing, and welding from 30 to 300 amps. Comes complete with instructions, guarantee and triple V-belt or flat pulley. Easy to hook up and easy to operate.

**WELDER ONLY—DUAL CONTROL MODEL.** Same as above but drive with your tractor, jeep or gas engine of 14 HP. or more. (Item 38b.) \$450. value. **\$119.50**

**WELDER ONLY—INDUSTRIAL MODEL** same as above, but with ceramic rotary type control providing 74 different heat settings for all types of welding. (Item 38b.) \$500 value. **\$139.50**

**COMPLETE POWER MASTER** Powered by a heavy duty 14.6 HP air cooled Wisconsin engine—belt driven. Wt. 480 lbs. (Item 280) Welder has ceramic rotary control with 74 heat settings. Compares with welder costing \$1200. Factory Special. **\$449.50**

**WELDING KIT.** Two 10 ft. leads, welding helmet, electrode holder ground clamp. Sold only with welder at... **\$10.50**

Send check or M.O. Prices f.o.b. Factory. 10 day Money back guarantee.

**MASTER MECHANIC MFG. CO.,**  
DEPT. 3-P Burlington, Wis.

SEND 10c for  
BIG  
1956  
Catalog

SEPTEMBER 1956 293





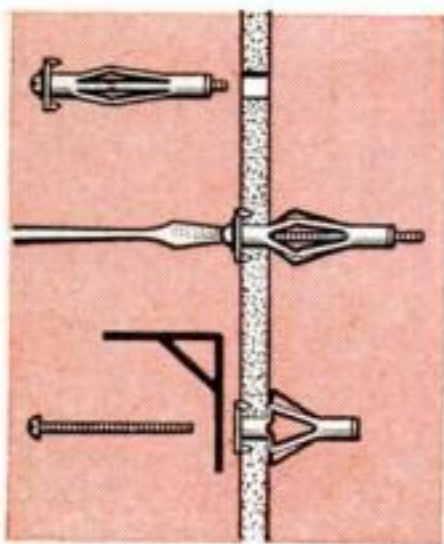
*A fastener that  
grips fixtures to  
walls quickly,  
securely...*



## ★STAR WALLGRIPS



makes any fixture-hanging job a simple task. Fixtures can be quickly removed or replaced when redecorating without disturbing the WALLGRIP. Send for new booklet "The Hang of Things", showing how to fasten all kinds of fixtures to any type of wall.



### How WALLGRIPS work in hollow walls:

1. Insert in Hole. Wings spread as bolt is tightened.
2. Positive Stop tells WALLGRIP is set.
3. Remove bolt and replace through fixture and tighten.

### ★STAR EXPANSION

Fasteners for Home and Industry  
Dept. PS-9, 142 Liberty Street  
New York 6, N. Y.

Please send me a FREE copy of the book "The Hang of Things".

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## New Supertankers Outgrow Harbors

[Continued from page 292]

an even keel, center tanks are usually filled first, then outside or wing tanks. The switching has to be timed to prevent spillage; a slow man or a sticky valve can result in a 20-to-30-foot geyser of oil.

In filling tanks, allowance must be made for the expansion of cargo under way when the hot sun beats down hour after hour on the tank decks. If too little air space is left, oil will be forced out of overflow pipes and the whole ship may be covered with an oozy, gooeey and highly inflammable mess.

Oil vapors inevitably escape from tank vents and glands in pumps and

.....

*About the only time a dime still is worth  
as much as ever, is when you have to  
use it in the absence of a screwdriver.*

—THE SIDEWALK SUPERINTENDENT

.....

valves, so smoking is forbidden except in living spaces and on the bridge. When on one ship a machinist tightened up on the pumps to keep down seepage, the friction overheated the metal and the whole compartment blew up.

**The regular run** of supertankers is a shuttle service from oil field to refinery and back, one way loaded to the marks with crude oil, the other ballasted with sea water to keep the ship seaworthy. The *Petrolore* will attempt to cut down that empty time from 50 percent to around 30. Instead of a shuttle service, her eventual run is planned to be a complete trip around the world. In the Persian Gulf she'll pick up oil to go to Marcus Hook by way of the Cape of Good Hope (loaded she can't fit in the Suez Canal). From Marcus Hook, the next leg is an empty one to Venezuela to pick up iron ore to carry to Japan by way of the Panama Canal. From Japan, she'll go in ballast back to the Persian Gulf. The complete voyage of some 29,000 nautical miles, with loading and unloading time, will take roughly three months, depending on weather. **END**



**Now! a SCREW DRIVER with**

**4 TIMES THE DRIVING POWER**

**RATCHET Palm Grip**  
Makes Screw Driving EASY

The extra radius of the Palm-Grip Ratchet greatly increases leverage, enabling FOUR TIMES the full turning power at the extreme end of the driver. With ratchet removed, Palm-Grip drivers are quality, conventional hand tools.

**PALM-GRIP QUALITY TOOLS**  
A variety of 40 different hand tools fit the Palm-Grip Ratchet. Conventional, Phillips, Frearson and Clutch type screw drivers, also nut drivers and socket adapters. Women marvel at the added power it offers with comfortable grip.

Look for this display at Hardware, Electrical, Auto and Building Supply Stores or write for free descriptive folder.

**Palm Grip**  
RATCHET DRIVERS

**KIPTON INDUSTRIES, INC.**  
ROYERSFORD, PA.

INDUSTRY

HOME

ELECTRICAL

HOBBY

The Palm-Grip Interchangeable Ratchet snap - fits into the steel socket of the shock proof plastic handle. The user can change to various size drivers quickly and easily.

THEY'RE **NEW!**



**FASTEST-CUTTING JIG SAW MADE!** This powerful new Millers Falls tool is a jig saw, hack saw, coping saw, rip saw, crosscut and keyhole saw all in one. Makes curved, straight or irregular cuts in wood, metal, all kinds of material—in places often inaccessible to other saws! Exclusive design features and special blades result in far greater cutting speed than any similar saw.

No. 480 Dyno-Mite Electric Jig Saw—\$49.50

THEY'RE **DYNO-MITE**



**FOR THAT PROFESSIONAL FINISH!** This new Millers Falls Orbital Sander finish-sands furniture, cabinets, interior trim . . . removes paint, varnish or surface imperfections . . . all without tracking, scoring or burning surface. High-speed orbital action permits sanding with or across the grain. Light weight makes it easy to use on overhead and vertical as well as horizontal surfaces.

No. 580 Dyno-Mite Orbital Sander—\$49.50

THEY'RE

**Millers Falls**

**Finest Power Tools Made**



**FREE AT YOUR HARDWARE DEALER'S**  
Ask for these folders on the whole power-packed line of Millers Falls Dyno-Mite electric tools including the remarkable new Dyno-Mite Power Workshop, or write direct.

MILLERS FALLS CO. • Dept. PS-15 • Greenfield, Mass.

**It's easy to hang a door with the NEW McKINNEY NON-MORTISE HINGE**

Simple • Easy • No Chiseling



- No Mortising
- Self-Aligning
- E-Z-Out Pin
- Heavy Gauge
- No Special Tools

3 Finishes: Dull Brass, Nickel or Bonderized Prime Coat  
**Send for Free Folder and Installation Instructions on McKinney Non-Mortise Hinges.**

**McKINNEY MANUFACTURING COMPANY**  
1715 Liverpool Street, Pittsburgh 33, Pa.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_





Need more closet space? This one's easy to build. Made from Upson 3/16". Just nail Upson in place and paint. Upson's easy to work, edges sand smooth.

## save 50% and more wherever your projects call for wall board

Upson wall board is perfect for all kinds of do-it-yourself projects. The list is endless: make cabinets, chests, closets, use Upson to finish your basement walls and ceilings, garage, add-a-room. Or make cut-out toys, a model train table. In fact, use Upson like plywood. Only with Upson you save money. Save up to 50% on each square foot you buy. And Upson is easy to work, light, strong. Saws like wood, paints beautifully.

Upson comes in a large variety of thicknesses and sizes. From 1/10", 1/4", 3/16" to waterproofed, super-strong 3/8" for outside use. Pebbled, smooth and striated surfaces. Sizes from 4' x 6' to huge 8' x 20'.



Upson wall board  
saws easily, edges  
sand clean, smooth!

There are many imitations, so  
ask for Upson wall board by name!

See your lumber dealer

# UPSON

WALL AND  
CEILING PRODUCTS  
SIDING, SHEATHING



99% new spruce wood fibers laminated for great strength

THE UPSON COMPANY, LOCKPORT, NEW YORK

## Volkswagen Races 858 Miles

[Continued from page 149]

*We changed seats twice* before crossing Ohio's eastern border at 2:53 p.m. and collecting our card at the gateway to the Pennsylvania toll road, the grandpappy of all of today's high-speed turnpikes. Here, too, the passenger-car speed limit was 65.

At four p.m., near Pittsburgh, we called it a day and sought a motel. We had averaged almost 48 miles an hour for 488 miles of turnpike, including our stops. For 303 miles of turnpike, including stops, we had done a little better than 53 miles an hour.

"Mmm," said Lockett. "Not bad!"

But the Continental had beaten our time across Ohio, and the advantage we had gained getting onto the Ohio pike had shrunk to 27 minutes.

*We were up early* the next day. A stitched and quilted overcast hid the sun. The tank took 9.8 gallons. Our gas economy had dropped to a shade more than 28.7 miles per gallon.

"Not so good," I said.

"We had crosswinds and headwinds," replied Lockett defensively. "Hard ones, too."

He had mounted an alarm clock on the lip of the glove compartment.

"So I can tell the time," he explained. "All that I can make out from that wrist watch of yours is that it's high tide in Honolulu."

Now we were in the Alleghenies. Crowns of hills notched the horizon as we topped one rise after another. The VW labored. Lockett, driving, discovered that if he advanced toward an easy grade at 64 miles an hour (70 indicated) and held the throttle on the floorboard, the speedometer needle clung there. If he slacked off, he couldn't regain his speed. On the long maximum grades (three percent), the VW would drop from 64 to as low as 47 in fourth gear. Shifting into third helped sometimes, but it did no good above 55 indicated.

*On the downgrades* we had to take that right foot completely off the throttle

[Continued on page 298]



*Kean Kutt says...*



**SHARK  
BRAND**

SWEDISH CHISELS  
MAKE HARD JOBS  
EASY because of...

### A MORE DURABLE EDGE

Shark Brand Chisels undergo a special super hardening process which is applied not only to the cutting edge, but is carried two-thirds of the way up the blade. This means longer life for the chisel because it can be sharpened over and over again without losing its edge holding qualities.

... but there's more to why Shark Brand Chisels outlast and outperform ordinary chisels... Ask for them at your hardware dealer now!



**Sandvik** STEEL, INC.

Saw & Tool Division  
1702 NEVINS RD, FAIR LAWN, N. J.

In Canada: P.O. Drawer 1330, Station "O", Montreal 9.

**Red Devil**

**FP33 HOME  
FLOOR CONDITIONER**

The world's most popular  
style floor conditioner

Counter-rotating brushes mean perfect floor conditioning with a finger-tip touch. Eliminates all drudgery from scrubbing, waxing, polishing, buffing. Will steel wool dirt and grime from wood and all floor surfaces.



**FREE**

How to Maintain  
Wood Floors. Illustrated  
instructions on polishing,  
cleaning, varnishing, waxing  
and sanding wood floors.

**Red Devil Tools.** Dept. 128

2400 Vauxhall Rd., Union, N. J.

Please send FREE copy of "HOW TO MAINTAIN WOOD FLOORS."

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

1664

"We brought the charm  
of  
'Famous  
Design'  
into our  
home



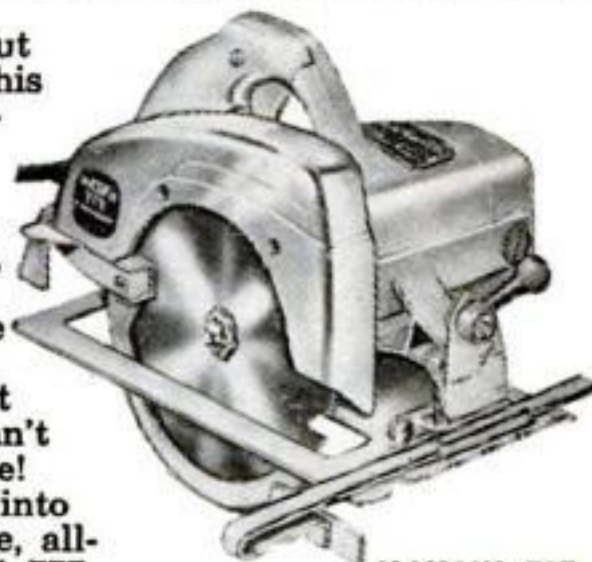
with **Cummins**  
portable power tools!"

Built of Weldwood Plywood — a product  
of United States Plywood Corporation.



"We built this  
good-looking  
Serving Table-  
Cart ourselves —  
and it's an  
original Russel  
Wright design  
you can't buy  
anywhere!  
Your Cummins  
dealer has the  
simple plans —  
and the Cummins  
power tools to  
do the job right,  
the easy way!"

Make every cut  
required for this  
Serving Table-  
Cart with  
Cummins  
MAXAW...  
quickly, easily,  
accurately!  
Exclusive True  
Course Guide  
assures straight  
cuts so you can't  
saw off the line!  
Slip MAXAW into  
sturdy, oversize, all-  
steel MAXAW 777  
Saw Table — make  
precision bevel, miter,  
crosscut or rip cuts.  
Get Serving  
Table-Cart plans  
at your Cummins  
dealer now.



**MAXAW 717**  
6 3/4" blade cuts  
1 7/8" at 45°  
angle .....\$49.95



**MAXAW 777  
SAW TABLE**  
Converts MAXAW  
into tilt arbor  
table saw in  
seconds! Equals  
cutting capacity  
of 8" table saw  
... weighs 46  
pounds without  
saw .....\$39.95

Other Cummins MAXAWS  
priced to \$79.95.

Prices slightly higher in Canada.

Take this coupon to the dealer displaying this ad, or mail to:

**Cummins Portable Electric Tools**  
5055 N. Lydell Ave., Milwaukee 17, Wis.

( ) Enclosed is 25c in coin. Please send me the Cummins-  
U. S. Plywood "Famous Designer Plan" for Russel Wright's  
Serving Table-Cart.

( ) Please send me information on the other plans available  
in your "Famous Designer" series.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

Made by *John Oster* MANUFACTURING CO. © 1956 J.O.M.C.

SEPTEMBER 1956 297



# How to fit a boy and his hobbies into your attic



**Build it for \$13<sup>00</sup> a month\*  
with Gold Bond Products**

It's easy to add a room with Gold Bond Building Products, because they're *designed* to work together.



Take this attic room, for example. To keep it snug and warm in winter (and up to 15° cooler in summer) line it with Gold Bond TWINSULATION®. (Staple blankets between studs and rafters.) For a good-looking, sound-absorbent ceiling, nail or staple up Gold Bond Insulation Tiles (interlocking edges hide fasteners). For walls, use big, sturdy panels of Gold Bond Gypsum Wallboard. Conceal joints with Gold Bond's Tape Joint System. Then, finish the whole room off in a day with quick-drying Gold Bond® Velvet . . . the washable latex paint.



See your Gold Bond dealer today for all the materials you need.

\*COST BASED ON MATERIALS ONLY SPREAD OVER 36 MONTHS.  
PRICE VARY SLIGHTLY IN SOME LOCALITIES.

**SEND FOR  
ILLUSTRATED  
BOOK**

## Gold Bond

BUILDING PRODUCTS



National Gypsum Company, Dept. PS96  
Buffalo 2, New York

Please send Gold Bond's "How-to-Do-It" Plan #19 with step-by-step directions for building an attic room. Enclosed is 10¢ to cover mailing.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_

County \_\_\_\_\_ State \_\_\_\_\_

## Volkswagen Races 858 Miles

[Continued from page 296]

to get any compression braking. We were bothered, too, by the small glass area in the back. It created two big blind spots. The hills, road repairs and the Penn pike's seven tunnels, where the posted speed is 35 miles an hour, cut into our average. But fewer stops helped. By the time we reached the Delaware River Bridge, marking the end of the Penn toll road, we were covering 55 miles each hour.

The VW has no gas gauge. Back in Chicago we had been told: "Just run off the main tank until you're out of gas. Then turn this valve—there's a reserve tank—and you'll have enough fuel for 40 miles more. That will get you to a gas station."

*The main tank had run dry* 10 miles short of the bridge. We had no warning. The engine just quit. We had been sitting there, waiting for it, but when it happened we both jumped. I switched to the reserve.

"Forty miles?" asked Lockett.

"Forty," I confirmed.

As we left Pennsylvania and wheeled onto the New Jersey Turnpike, we had lost eight additional minutes to the Continental, slicing our total time advantage to 19 minutes.

The gas supply bothered me. We had put 14 miles on the reserve before we saw a sign: it would be 24 miles more to the first filling station. If the man in Chicago was right, we had a meager two-mile fuel cushion.

*"Let's live dangerously,"* said Lockett.

He was driving now, and he nursed the throttle on the downgrades. The clock and the odometer ticked on.

"Forty," said Lockett.

"Forty," I said.

Then it happened. The car went *whaaaaa*, gasping, and lapsed into a stark silence. The reserve had lasted for exactly 26 miles. We rolled off into the shoulder of the road, put out the white handkerchief and raised the hood.

[Continued on page 310]





**nichols**  
**NEVER-STAIN**  
®

## HANDI-PAC ALUMINUM NAILS

Thousands of uses in and around the house . . . in your workshop . . . on all your projects. **RUSTPROOF**—no unsightly streaks or stains. Hi-Temper solid aluminum alloy—easy to drive. Last indefinitely. Wide choice of sizes and types (including file grip and screw thread) . . . on your dealer's counter.

**NICHOLS**

WIRE & ALUMINUM COMPANY, DAVENPORT, IOWA

## Automatic Saw Set...

### MAKE EXTRA PROFITS!

Set 400 teeth per minute on hand or band saws, 4 to 16 point, with the BeMaCo Automatic Saw Set. Fast, accurate, true hammer-anvil action sets teeth uniformly, eliminates tooth breakage. Used profitably by saw shops and manufacturers everywhere. Every machine positively guaranteed!

Write for details—today!

Saw  
Machine  
Division  
24-S

**BEAVER MFG. CO.**  
800 ISIS AVENUE • INGLEWOOD, CALIF.

**New!**

FROM **MARQUETTE**



## Model "31" AC WELDER

Made to order  
for...

**HOME SHOPS  
REPAIR SHOPS**

115V/230V

**WRITE TODAY!**

**MARQUETTE MANUFACTURING COMPANY, INC.**  
307 EAST HENNEPIN AVE. • MINNEAPOLIS 14, MINN.

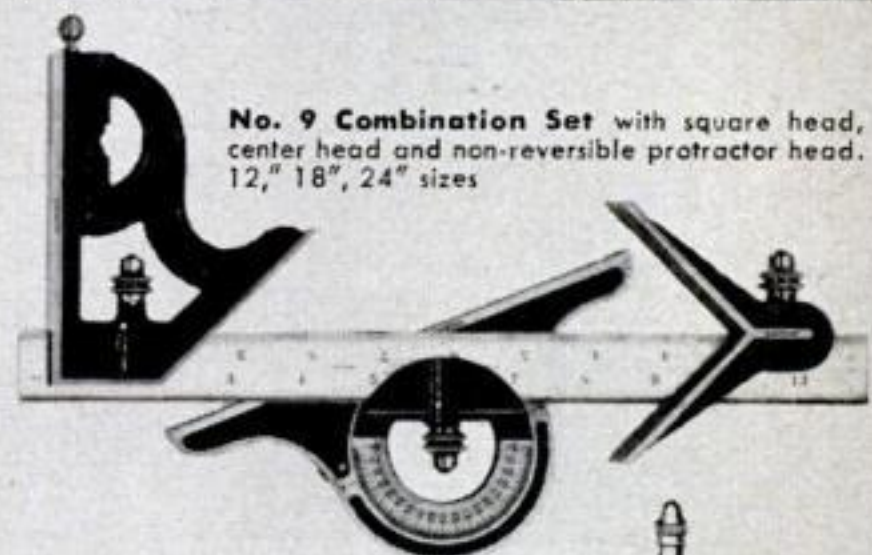
## Useful, Dependable, High Quality Starrett tools

for HOME IMPROVEMENT  
HOME WORKSHOP  
DO-IT-YOURSELF  
CARPENTRY & WOODWORKING

No. 132 Precision Bench Level  
4", 6", 9", 12", 18", 24" sizes



No. 9 Combination Set with square head,  
center head and non-reversible protractor head.  
12", 18", 24" sizes



No. 800 Square Head Nail  
Sets. Five point sizes —  $\frac{1}{32}$ "  
to  $\frac{5}{32}$ "



Starrett Tool and Instru-  
ment Oil has countless uses  
around the house

No. 604-R Steel Rules, 1" to  
72" lengths, 8ths, 16ths,  
Quick Reading 32nds, 64ths  
No. 439 24" Combination  
Tool—seven useful tools in one  
No. 47 6" Universal Bevel  
No. 92 Dividers 6" to 9"  
No. 85 Improved Extension  
Dividers, 7" to 12"  
No. 50 Improved Trammels  
No. 59 Precision Trammels  
and Attachments  
No. 108 Aluminum Line Level  
No. 116 Bevel End Nail Sets  
No. 176A Extra Heavy Nail  
Sets  
No. 111 Stair Gage Fixtures  
No. 470 Hexagonal Stair  
Gage Fixtures

No. 87 Mercury Plumb Bob  
No. 99 Popular Priced Transit  
No. 101C Leveling Instrument  
No. 999 Leveling Rod and  
Plastic Target  
No. 554 "Eyeglass"  
Screw Driver  
No. 425 Pocket Slide Caliper  
No. 548 Architect's Pocket  
Tape  
No. 530 Easy-Read, No-Glare  
Steel Tape  
No. 129 Bench Block  
No. 819 Lightweight  
Automatic Centering Punch  
No. B51214 Bluestripe High  
Speed Hacksaw Blades  
**SAFE-FLEX** High Speed  
Hole Saws

**FREE Starrett Catalog** displaying all these  
and many more Starrett precision tools, tapes,  
hacksaws, band saws and band knives. Write  
Dept. P.S.



**THE L. S. STARRETT COMPANY**  
Athol, Massachusetts, U. S. A.



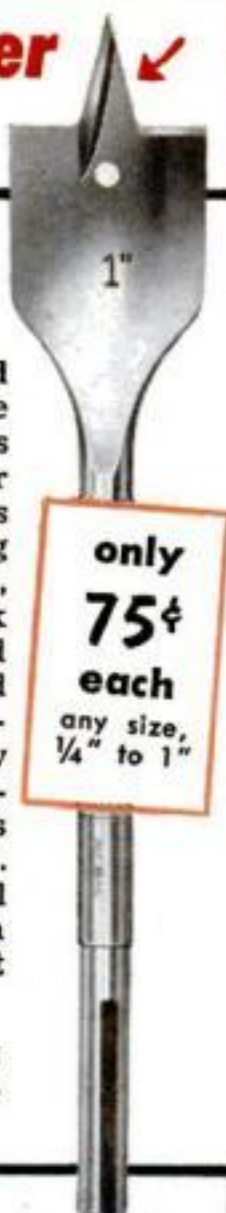
## More cutting power for 1/4" electric drills

### Irwin Speedbor "88" most revolutionary bit in years

Irwin's Exclusive Hollow Ground Point and spade-type cutters bore faster, deeper, cleaner with less power. Try the Speedbor "88" in your small 1/4" electric drill or drill press and see. Get smooth, effortless cutting action in hard or soft woods, plaster, plywood, plastics — even hardrock maple! Forged in one piece from solid bar of high carbon steel, hardened full length to stay sharp. And remember...

...the hollow ground point is exclusive with Irwin's Speedbor "88". Buy individual sizes or sets from your independent hardware dealer.

No. 886-R plastic roll set of 6, sizes 3/8" to 1", only \$4.50



only  
**75¢**  
each  
any size,  
1/4" to 1"

**IRWIN**  
Wilmington, Ohio

- the original solid center auger bit
- screw drivers • screw driver bits

## Strip off OLD finish Make it like NEW

It's easy to make furniture, wood trim, floors, etc. like new. Strip off the old finish with quick-working Wonder-Paste. Applied with a paint brush. Won't run on upright surfaces. Softens paint, varnish, enamel so it comes off easily. Leaves perfect surface for new finish. At paint and hardware stores.

- Write for leaflet and advice on your removing problem.
- Wilson-Imperial Co.  
121 Chestnut St., Newark 5, N. J.



**WONDER-PASTE** 5 MILLION CANS SOLD

## SAW SHARPENING IS EASY

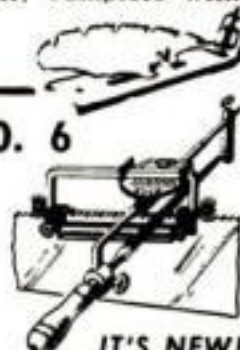


Sensational new Super Filer No. 11 joints and sharpens both hand and circular saws 6" to 10" with all teeth the correct height, depth, pitch and bevel. Easy to use—when file hits hardened steel roller, teeth are finished. Saw runs true and smooth with no side pull. Complete with special 8" file \$9.95 p.p.d. "TRU-CIRCLE" saw set automatically sets teeth at 10° or more \$2.95.

### SUPER SAW FILER NO. 6

Automatically controls

DEPTH  
ANGLE  
PITCH  
Automatic  
DEPTH  
CONTROL  
Rollers



IT'S NEW!

Perfect bevel and angle maintained, and fool-proof depth control for all Rip, Crosscut and Handsaws. Precision made and calibrated for instant setting at desired angle. Can be used in any vise or clamp. Complete with file, only \$6.50 p.p.d.

### NEW! 7-in-1 HEX-KEYTAINER

Always ready when needed—seven most popular socket screw wrenches in one convenient tool. Sizes .050 to 3/16. Fits set screws from No. 3 to 3/4—cap screws from No. 1 to 1/4. In handy plastic case. \$1.25 post-paid



### FOOL PROOF DOWEL CENTERS

Assure positive, quick alignment of mating units with ADM Dowel Centers. Insert in drilled holes, press mating piece against points, tap lightly. Centers inscribe exact location for opposite holes. Pairs of 3 popular sizes (6 centers)—for 1/4", 3/8", 1/2" holes... \$1.00 post-paid

MONEY BACK GUARANTEE—CATALOG FREE

A. D. McBURNEY, 5908 Hollywood Blvd., Hollywood 28, Cal., Dept. 5-96

**CUT REAM SAW ALL WITH ONE-DRILL BIT**  
**Now New** \$2.95 Eq. **LOW PRICE**  
REPLACES \$50 WORTH OF CUTTING TOOLS! **MONEY BACK GUARANTEE**

Mail Check—Money Order—3 for \$8.50—Any Style.

3 STYLES: All Purpose, Fits 1/4" or 1/2" Motor  
Heavy Metal, All Wood or Drill Press.

DEALERS INQUIRIES WELCOME  
INTERNATIONAL TWIST DRILL, Rm. 900, Kansas City 5, Mo.



### ELECTRIC WELDER

AC or DC  
110 Volt

The "Little Marvel" all-metal welder. 5-year written guarantee. Welds 1/8" metal or money back. Repairs tanks, tools, fenders, machine parts, etc. Complete with everything—rods, unit, eye shield, directions. \$6.95 plus 50c postage. Flame

torch accessory for soldering, cutting, brazing \$3.95 complete with carbons, brass rods, flux. \$2.00 deposit on C.O.D. 75 Ampere 1/4 inch Transformer Welder \$21.95 F.O.B.

ESSAY MFG. CO., Dept. 47, Quincy 69, Mass.

**\$6.95**  
Com-  
plete

## GIGANTIC SAVE-TO-70% MAIL SALE

WAR SURPLUS  
EXCESS INVENTORY  
BANKRUPT STOCK



To reduce our immense stocks of the finest war surplus items, we offer hundreds of amazing buys—SEND FOR LARGE FREE CATALOG. All items shown here sent pre-paid except when stated "F.O.B."

### Typical Surplus Bargains

- Golf Car Battery (6-12v) motors F.O.B. \$19.46
- Hydraulic Pump, 12-v, 1000 lb. F.O.B. 41.90
- Air Compressor, sing. cyl. 150 lb. 19.95
- Irrigation Pump, 280 g.p.m. 2 1/2" 44.37
- Irrigation Pump, 140 g.p.m. 1 1/2" 24.61
- Army Power Plant, 3000 watt, 115-v. 349.50
- Army Power Plant, 2000 watt, 115-v. 269.95
- Army DC Generator, 115-v, 3000-w. 58.75
- Gear Head DC Motor, 6 or 12v. 8.72
- Weed Spray Outfit, 5-row (\$175) 97.65
- Hydraulic Cylinder 2"x10", 3000-lb. lift 17.50
- Hand Winch, Red, gear type 1000-lb. lift 8.95
- Surveyors Level and Tripod, leading make 42.95
- Camper's Power Plant, 500-w, 115-v DC 79.50
- AC-DC Power Rectifier 110-v to 300-v F.O.B. 15.61
- Farm Telephone, Magneto (cost \$25) 9.95
- Govt. Prismatic Periscopes (cost \$20) 2.99

- Engineer's Stop Watch precision 9.97
- Portable Air Supply, Spraying Tank Unit 13.49
- Air Powered Tree Trimmer (\$69.50) 15.37
- Hydraulic Cylinder 1 1/2"x4" (\$75) 3.49
- Hydraulic Tractor Pump 1000-lb. 12-gpm 45.50
- Giant Fresnel Advertising Light (\$280) 49.50
- Govt. Wind Direction Remote Indicating Units (\$121) 18.71
- Govt. First Aid Kits for Trucks 6.95
- Window or Attic Fan Kit (24") 12.95
- Diving Unit (mask, harness & 50' hose) 12.91
- Blackhawk Hand Hyd. Pump & Reserv. F.O.B. 19.21
- Finest Paint Spray Gun (1-qt.) 9.95
- Edwards Alarm Bell 110-v AC (\$3.95) .69
- Spectacular Revolving Beacon Searchlight (\$1000) F.O.B. 191.79
- Electric Auto-Pulse Fuel Pump 6-v. 6.95
- G.E. Amplifier-Rectifier 110-v (\$150) 6.97
- Govt. Fire-Burglar Alarm Unit 5.87
- Desk Telephones (make antique lamp) 1.99
- G.E. 0-300 amp DC Ammeter 6.89

## SPECIAL OF THE MONTH BOAT & TRUCK ELECTRIC WINCH

Operates from 6 or 12-v battery

over 1000-lb capacity

• Powerful expensive

Govt. ball bearing

motor with built-in

100-to-1 ratio precision

reduction gear.

Gives smooth powerful pull on

winch cable.

• Hundreds of applications.

Mount on boat trailers, boat

docks, raising anchors, etc.

• Ideal for trucks, farm equip-

ment trailers, industrial uses.

Cuts labor loading costs 90%.

54 lbs. 17"x12"x8", Drum

holds 40' 1/4", or 75' 3/16"

cable. Govt. Cost

over \$200. F.O.B. Lincoln.

**\$46.71**

ORDER FROM AD or write us for Big New

Winter Catalog. 1000s items! Motors, sport-

ing goods, hand-electric tools, watches, etc.

We pay freight except where stated "F.O.B."

**BURDEN SALES COMPANY**

831 "O" St., Lincoln, Nebraska





# UNCLAIMED MICROSCOPE SHIPMENT!

Message to POPULAR SCIENCE Readers: We have been fortunate in being able to purchase an unclaimed ocean shipment of student and professional microscopes at about half normal price. We are happy to pass this saving on to you. These instruments make wonderful gifts for adults and boys and girls who have begun to take an interest in nature. Order now. The supply at these prices is limited. All lenses are precision ground optical glass, no plastic lenses.

**\$9.99**

POSTPAID



## MODEL 300 KIT—28 PIECES

INCLUDES TRIPLE TURRET 100X, 200X, 300X MICROSCOPE

and the following pieces of equipment: 1 light with 3 bulbs—6 blank slides—6 covers for slides—1 needle—1 tweezer—1 scalpel—1 eyedropper—4 specimen bottles with cork—2 specimen bottles with cork—1 flask beaker—1 measuring beaker—1 grinder mixer—1 box, approximate size 11"x 16"x 5 1/2"—1 instruction manual.

This model is powerful enough to plainly show microscopic animal life in aquarium and pond water. Thousands are in use in high schools throughout the United States. This complete kit has been nationally advertised at \$22.50.

**\$4.99**

POSTPAID



## MODEL 300 MICROSCOPE

TRIPLE TURRET 100X, 200X, 300X

This is the basic instrument included in the kit shown at left. Purchase price includes a hardwood cabinet and instruction manual. This model is now selling on the American market for \$10.00.

**\$28.75**

POSTPAID



## MD.800 PROFESSIONAL MICROSCOPE

QUAD TURRET—75X, 150X, 300X, 600X

A professional quality instrument for advanced hobbyists, high school and college biology students and pre-med use. Prismatic swivel head, achromatic condenser, six aperture diaphragm, precision rack and pinion focusing. Hardwood carrying case included. A \$50 value.

**TO ORDER:** Send check or money order. 1/2 deposit for C.O.D. 10-day money back guarantee. Calif. resid. add 4% state tax. All instruments shipped well packed and insured.

*the* **akron**

4383 SUNSET BLVD., LOS ANGELES 27, CALIF.

**BUILD IT**

**FIX IT**

with

**AMBROID**

- Ready-to-use
- Fast drying
- Extra strong
- Flexible
- Waterproof

## IT STAYS STUCK

Excellent for model building, home crafts, projects, furniture making, jewelry, toys, etc. Bonds many materials ordinary adhesives fail to hold.

MENDS wood, leather, canvas, upholstery, china, glass, pottery, etc.



Try Ambroid in your Business, too. Unsurpassed for Radio, TV and Electronics. Makes ideal protective coating on wiring, coils, etc. Suited for quick assembling.

SPORTSMEN! Take Ambroid on your trips—first aid for sports equipment. Perfect for Archery, too.

If your hardware or hobby dealer cannot supply you, send 30c for large tube, postpaid. Money back guarantee.

**AMBROID**

WEYMOUTH 88, MASS.



(Pattern No. 586—  
50¢ Colonial  
Cobbler's Bench)

## COLONIAL COBBLER'S BENCH

... is so easy to build yourself with Easi-Bild® Patterns. No skill or experience is needed.

All you do is trace simplified pattern on wood; saw, and assemble. Patterns list materials and outline each construction step.

Complete catalog of over 250 Easi-Bild Patterns is yours for only 35¢. Send to EASI-BILD, Pleasantville, N. Y.

©T.M. Reg. Easi-Bild Co.

## EASI-BILD PATTERNS



Easi-Bild Patterns specify PLASTIC WOOD for a real professional job. Handles like putty—hardens into wood.

**"PLASTIC WOOD"**



**WAR SURPLUS** AND OTHER BARGAINS **SAVE UP TO 90%**

### BUILD YOUR OWN ARC WELDER, LIGHT PLANT OR BATTERY CHARGER

#### Complete Kit \$39.95

Kit consists of: 1 Famous Navy NEA-5 Generator. New! Combination AC-DC Type. AC voltage—115 V. DC voltage—24 V. 200-300 Amps. 2 complete generators in 1 . . . 2 separate fields & 2 separate armatures on same shaft yet no larger than reg. aircraft generator. Ideal for home, farm & shop lighting plants by hooking wires to AC side which will give 1200 watts. DC side can be used for charging batteries, welding & operating war surplus low voltage hobby motors & equipment. Also in kit: 1 Voltage Regulator DC. 1 Voltage Regulator AC. 1 Reverse Current Relay. 1 Ammeter and Shunt. 1 Voltmeter, 0 to 30 Volts. 1 Rheostat. 1 Electrode Holder. 1 Giant Toggle Switch. Welder's Shield. Wiring diagram for hookup as welder. Wt. under 100 lbs. Approx. GOVT. COST \$600. Kit, \$39.95. Navy NEA-5 Generator (only) — same as above . . . if purchased separately: \$27.50.

#### NEW PUMP AND MOTOR

Pump has 1" connections, built-in relief valve, adjustable up to 1500 lbs. Max capacity 6 GPM. 1 1/2 H.P., 24-volt motor. 4000 RPM. Can be used on 12 or 36 volts. Govt. cost approx. \$350 — our price — NEW — \$9.95.

#### MICROMETERS

Chrome plated, precision engineered, carefully tooled to give long life. All new 0-1" cap. \$2.25 ea., 1-2" cap. \$3.50.

#### NEW IMPROVED

#### MAUSER-TYPE VERNIER CALIPERS

Quick, handy, accurate. 6" Vernier Calipers. Glass hardened, lapped measuring surfaces. Fine engraved scales—1/1000" and 1/10mm for inside, outside & depth measurements. Friction thumb release. Larger capacity. 2 gib adjustments. Reg. \$25. Now only \$7.95. Leather case \$1 extra.

#### PIONEER MAGNETIC COMPASS

For boats, trucks, cars. By Pioneer Instrument Co., Div. of Bendix, No. 1829-2A. Contains screw-type heeling compensator, removable drawer-type compensator, screw-type horizontal compensator and spider-type compensator. All devices for elimination of errors caused by effects of magnetism. Has constant deviation corrector and course setter. Rotable dial engraved with compass card graduations. Complete with book of instructions, light and mounting screws and shock mounts. Shpg. Wt. 10 lbs. Approx. GOVT cost \$400. NEW. \$13.95

#### NEW! BIG CATALOG

Largest ever . . . just out . . . new low prices. Send 25c for your copy today. Prices F.O.B. Culver City unless otherwise stated. Check, cash or money order. 50% deposit for C.O.D.

**AIRBORNE SALES CO., INC. DEPT. PS 956**  
8501 Stellar Drive, Culver City, Calif.

## TOOLS WHOLESALE

### MAKE EXTRA MONEY

Start your own business. Sell tools to your friends, neighbors, for industrial & institutional use.

A MILLION DOLLAR INVENTORY AT YOUR FINGERTIPS. NO STOCK TO CARRY, ORDER AS YOU NEED IT.

Send \$1. deposit and get the giant new 1956 wholesale dealers' catalog. \$1. is credited to your first purchase or refunded if you are not 100% satisfied.

**SILVO HARDWARE CO., Dept. PS-3, 108 Market St., Phila. 6 Pa.**

Own and operate your own business on a part time or full time basis in the lucrative field of **HARDWARE, APPLIANCES, BICYCLES, CAMERAS, HAND TOOLS, FANS, POWER TOOLS, MOTORS, PAINTS, etc.** **WHOLESALE DISCOUNTS** Up to 50% off

## What can I make with HOBBY TOOLS?



only  
**75c**

"HOBBY TOOLS & HOW TO USE THEM," the new 96-pg. X-acto manual, gives the answers — interestingly and authoritatively. Shows in easy steps what to make and how to make it — projects in whittling, scale modeling, leathercraft, metalwork, block printing, etc.

**X-acto**  
Inc.

At hobby stores or write direct.  
48-47 Van Dam St., L. I. City 1, N. Y.

## DO IT BETTER . . . DO IT WITH DP



**CAULK  
GLAZE  
SEAL  
PATCH**

Prevent drafts, moisture, damage and deterioration the easy way. Use D-P Caulking Compound . . . in cans or handy cartridges for gun use. Always stays in condition for immediate use. Fill cracks in brick, stone, wood. D-P stays in place permanently. Get D-P glazing, sealing and caulking compounds or putties at all good stores!

Ask your dealer for D-P Products.

**THE DICKS**

5301 Huberville

INSIST ON D-P

**PONTIUS CO.**

Ave., Dayton 3, Ohio

BEST SINCE 1867

**WELD  
BRAZE  
SOLDER  
CUT**

**4WAY**

**ONLY  
\$14.75**

f.o.b. factory

**WELDER**

Acclaimed by thousands of Homeowners, Mechanics and Hobbyists as the welder of 1001 uses. Easily operated from properly wired 110 volt AC or DC line. The ideal gift with a life-long use . . . Order today on 10 day money back guarantee.

**FOUR-WAY WELDER CO., Dept. F3-J**  
1810 S. Federal St. • Chicago 16, Ill.

Complete with  
Twin Carbon Arc  
Torch and ac-  
cessories . . . to  
handle all metal-  
craft work.

## DO MORE PLANING JOBS WITH LOW COST BELSAW



Exclusive MONEY-MAKING Features: Full 12 3/4" x 6" capacity • Power feeds at 14' to 34' a minute • Provides for Grinding Knives in the Cutter-head • Attachments for Jointing, Rabbeting, Tongue, Matching, Groove. Convert low cost rough lumber into high priced stock. Easy to make flooring and popular patterns. Send Today for FREE Literature and Prices.

**Belsaw Machinery Co., 2067 Field Bldg., K.C. 11, Mo.**

**LOW DOWN  
PAYMENT  
EASY TERMS**

## WOODWORKERS CONSTANTINE'S CATALOG

FROM THE LUMBERYARD KNOWN ROUND THE WORLD. The largest selection of rare woods, veneers, inlays, lumber, plywood shown in natural colors with professional instructions. Over 2000 unusual hard-to-get hardware items and tools. Your copy of this 126 page catalog sent by return mail for 25c.

**Albert Constantine & Son, Inc., 2054-C Eastchester Rd., N.Y.C. 61**

## NOW—THE QUICK-WAY TO SHARPEN ALL CIRCULAR SAWS

**NEW**

Model  
PG-12  
Complete  
No  
extras  
to buy.  
**\$16.50**  
Postage  
Paid



Model PG-12 sharpens joints, gums, and retools all cross cut, rip, combination, miter, and planer blades up to 12" in diameter. Two precision index plates give versatile, accurate sharpening. Guarantees precise spacing of teeth. New safety rest prevents tilting and gouging of blade. Save time and money. Special \$3.00 grinding wheel also included for use on your own power table. Fits regular or radial swing tables.

Order today. Send check, cash, or money order. We pay postage.  
**QUICK-WAY SAW CO.**  
134 Tompkins St., Cortland, N.Y.



USE GENUINE

# MOLLY



REPLACEMENT OR REFUND OF MONEY  
Guaranteed by  
Good Housekeeping  
IF NOT AS ADVERTISED THEREON

## THE PERFECT FASTENER

To hold ANYTHING  
Securely in Hollow Walls,  
Floors and Ceilings

OVER  
100,000,000  
IN USE!

Unlike nails and screws, Molly allows you to install fixtures securely and exactly where you want them—not where studs are. Molly ends loose fixtures, crumbled plaster and broken walls. Molly reinforces the area in which used, won't pull through. Unlike other types of fasteners, Molly anchorage is permanent—fixtures can be removed and replaced in the same anchor. Molly is inexpensive and money-back guaranteed.

Write for Free Folder • Available Wherever Hardware Is Sold



ALWAYS ASK FOR GENUINE

# MOLLY

## SCREW ANCHORS

MOLLY CORP.  
READING, PA.  
DEPT. 15

## Professional Mechanics' TOOL CHEST

FOR YOUR HOME WORKSHOP



This may be the lowest cost full-sized chest in America! 4 sliding drawers in blue-gray rugged steel cabinet. 26" x 12 1/2" x 12 1/2". Keep your valuable tools safe, clean and always at your fingertips.

\$24<sup>75</sup>

F.O.B.  
ST. PAUL

FREE BULLETIN describes this and 12 other models!

HUOT MFG. CO.

532 No. Wheeler St., St. Paul 4, Minn.



## HOLD-E-ZEE SCREWDRIVERS

The Original  
AUTOMATIC GRIP

Top Quality—Plus!

Finest materials and workmanship plus exclusive, much-wanted features

—YET COST NO MORE THAN ORDINARY SCREWDRIVERS!

At Leading Dealers Everywhere



Pat'd.

UPSON BROS., INC., ROCHESTER 14, N. Y.



## solves woodworking problems in seconds!

Speed your jobs, get answers to countless building and woodworking questions immediately! Improved GREENLEE Woodworking Calculator converts linear to board feet, gives nail specifications, tool sharpening tips. Compares woods, gives bit sizes for screws, concrete mixes, painting information, etc. Convenient... simple to read. 6" diameter... heavily varnished cardboard. Special offer by the makers of famous GREENLEE tools... **Only 25c**

(no stamps please)



The GREENLEE line of fine tools includes auger bits, electric drill bits, chisels, gouges, spiral screw drivers, drawknives, and many more. At leading hardware and building supply dealers.

GREENLEE TOOL CO.,  
2129 Columbia Ave., Rockford, Ill.





## NEED CONCRETE...USE SAKRETE

• It's Easy To Fix With a  
SAKRETE MIX. Do it in '56!

Patch It • Build It • Repair It



JUST  
ADD  
WATER

• For the SAKRETE 48-  
page booklet with photos,  
diagrams and instructions  
for "Do it yourself" cement  
jobs, see your building sup-  
ply dealer, lumber dealer or  
hardware store or send 25  
cents to —

SAKRETE, Inc.  
P. O. Box 11, Dept. C  
Cincinnati 17, Ohio

Gravel Mix —  
Sand Mix —  
Mortar Mix —



# SAKRETE

## NEW! DISCOVERY! SAVES PLUMBING BILLS



### CLEANS INSTANTLY

CHICAGO—Sept. 1st—Home  
Owners, Offices, Apartments, in-  
cluding Factories are constantly  
having trouble with clogged-up  
pipes which proves expensive in  
Costly Plumbing Bills—

But now—using Water Impact  
and Air Pressure, here is a new  
unit called the **Plumber's Flush-  
ing Gun**, which cleans all lines up  
to 100 ft. It will open any num-  
ber of bends in pipe. Yet anyone  
can operate this new gun, which  
triggers easily.

TOILETS, URINALS, SINKS,  
and FLOOR DRAINS clogged  
with paper, grease, rags, sand,  
and other debris can be cleared  
with one or more shots from the  
gun, saving the owner, the Gun's  
price the first time it is used.  
This new Flushing Gun may be  
used on any 1/2 to 6 inch waste  
pipe including Sink Drains, Floor  
Drains, Hot Water Pipes, Drink-  
ing Fountains, Septic Tanks, and  
Urinals. Obstructions melt away  
INSTANTLY when struck by the  
hammer like blow of this new  
unit.

What is this Tool worth in **Costly Plumbing Bills**  
Saved in your Home or building. For your own  
good—Tear this Ad out now and write your  
name and address beside Ad for Free Booklet.  
No Agent will call—Obey that urge, mail now  
or write postcard. (Chicago Phone Kildare  
5-1702) **MILLER SEWER TOOLS, DEPT. P.S., 4640 N.  
CENTRAL AVE., CHICAGO 30, ILLINOIS.**

## BRAND NEW! "ARCO HOLE-SAW" with AUTOMATIC SLUG-EJECTOR



Fits any Electric Drill, Lathe, Drill-Press or Motor. Ex-  
clusive "Slug-Ejector" pops out discs immediately—there-  
fore works 3-times faster than other hole saws selling for  
twice as much. 7 shatterproof blades easily exchanged to  
cut 1", 1 1/4", 1 1/2", 1 3/4", 2", 2 1/4" & 2 1/2" holes thru any  
3/4" stock. Safety-lock screw prevents blades from  
"jumping out." Incl. 1/4" drill bit.....

**\$6.50**

No. 600 "ARCO HOLE-SAW"—as above, but with  
4 blades to cut 1", 1 1/2", 2" & 2 1/2" holes.....

**\$4.95**

At your dealer or order direct on our 10-day Money Back  
Guarantee. Send check, M.O. (ppd), C.O.D. plus post.

**ARROW METAL PRODUCTS CO.**

Dept. PS-9, 140 WEST BROADWAY, NEW YORK 13, N. Y.

## DO A BETTER JOB with DREMEL Straight-Line-Action SANDERS

Send for FREE  
Power Tool Catalog  
**DREMEL MFG. CO.**  
Racine, Wis.



## SENSATIONAL NEW HIGH SPEED DRILLMASTER

NOW turns the ordinary shop drill into HIGH SPEED DRILL  
PRESS at a big saving. When DRILLMASTER is used on a  
3,000 rpm drill press its top speed will be 20,000 rpm.  
Does the work of expensive high speed drill presses on  
brass, aluminum, plastics and cast iron where high speed  
drilling is necessary. Available for work of any size  
runs. Fits any 1/2" chuck, holding drills from 5/32 to  
#80. Shafts are heat treated and ground. Ball bearings  
and oil impregnated bearings and gear train are housed in  
cast aluminum. Precision made through-  
out. MAIL ORDER TODAY only.....



**\$62.50** Feb.  
Chgo.  
ON C.O.D. ORDERS WE REQUIRE A 10% DEPOSIT. Wt. 2#  
**DIRZIUS MACHINE SHOP "R", 1423-25 So. 52nd Ave., Cicero 50, Ill.**



## CAMELS HAIR BRUSHES! SURPLUS! 20 for \$1.00

Imagine! Never used Camels Hair Brushes  
that cost many many times this low price. You  
actually buy these brushes at less than the  
cost to manufacture. For use in the home, office,  
shop or store. For touch-up, pasting, drawing, lens  
cleaner, typewriter cleaner, cleaning precision instru-  
ments, guns, tools, sporting equipment and hundreds  
of other uses. Assorted sizes. Money back if not satis-  
fied. 20 brushes, \$1.00, 42 brushes \$2.00. Add 10c P.P.  
12 E. Madison Ave., Dept. 8-BR  
Dumont, New Jersey

**MATTHEW DAY CO., INC.**



## 128 PAGES Many in full color

packed with rare,  
fancy & imported  
woods... veneers,  
plywoods, pat-  
terns, tools, orna-  
ments, hardware  
...everything for  
the woodworker.

## Get This NEW Catalog of WOOD & WOODWORKING EQUIPMENT

**WORLD'S LARGEST SELECTION OF FINEST  
DOMESTIC AND IMPORTED WOODS...  
MOULDINGS, HARDWARE, TOOLS...ALL AT  
LOW MONEY SAVING PRICES!**

Your complete wood buying guide and proj-  
ect book. Craftsman is your best, most com-  
plete source of finest kiln-dried domestic and  
rare imported woods, beautiful wood inlays,  
colorful bandings, matched plywoods, em-  
bossed mouldings, carved ornaments, new-  
est woodworking tools, "hard to find" cab-  
inet hardware and fittings... more than 1,500  
items! Packed with newest scroll saw pat-  
terns, project ideas & money making plans.  
Enclose 25c (refunded with first order) to  
help pay mailing, handling cost. Write now!  
**Craftsman Wood Service Co., Dept. B-9  
2729 S. Mary Street - Chicago 8, Ill.**



## GROBAN FOUR-WAY OPEN CENTER HYDRAULIC CONTROL VALVE

**ITEM #126** — Four-way open center control valve, with built-in adjustable relief valve factory set at 1000 P.S.I. Spring loaded neutral position. For use with one double acting cylinder. In neutral position cylinder is locked and pump unloaded. Can be used as single unit or mounted in series. Has  $\frac{3}{4}$ " pipe thread inlet and outlet.  $\frac{1}{2}$ " pipe thread cylinder ports. Finger grip handle. Ship. wt. 10 $\frac{1}{2}$  lbs.

**AN OUTSTANDING BUY!**  
F.O.B. Chicago **21.50**

## HYDRAULIC LIFT CYLINDERS

• For Fork Lift Trucks • For Presses  
• Loading Ramps • Lifts 12500 lbs.  
Heavy duty hydraulic cylinders, at big savings.

**ITEM #502**—4" Bore—36" Stroke  
—134" Piston Rod. Wt. 95 lbs. F.O.B. Chicago..... **72.00**

**ITEM #503**—4" Bore—54" Stroke  
—134" Piston Rod. Wt. 135 lbs. F.O.B. Chicago..... **96.00**



## HOBART 2 H.P. D.C. ELECTRIC MOTOR

**ITEM #315**—Rated 24 volts, 90 amps, 4000 R.P.M. Has  $\frac{1}{2}$ " spline shaft on both ends of motor, ball bearing construction, as specified for use with electric wheel-chair design Popular Mechanics March issue, 1953. Convertible for use on 6 to 12 volts. Shipping Wt. 21 lbs. Dimensions: 11" x 5" x 6 $\frac{1}{4}$ ".  
F.O.B. Chicago ..... **13.00**



**ORDER DIRECT FROM AD**  
**SATISFACTION GUARANTEED**

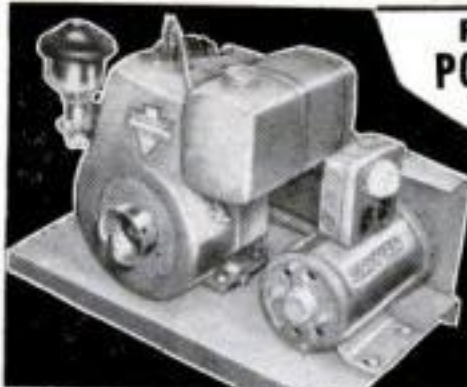
Send Payment Or  
Purchase Order Today

For Phone Orders call WEBSTER 9-3793

## FREE!—NEW CATALOG

1956-'57 EDITION, 56 PAGES,  
chuck-full of unsurpassed War  
Surplus Equipment Bargains for  
farm, home, factory, workshop.  
Write letter today.

## SHOP BY MAIL and SAVE at GROBAN'S



## FACTORY-TO-YOU-VALUE PORTABLE ELECTRIC LIGHT PLANTS

### POWER TO OPERATE:

• Electric Saw, Elec-  
tric Drills, Pipe  
Bender.

• Refrigerator, Deep  
Freezer, Incubator.

• Water Pump, Ra-  
dio, Lights, Air-con-  
ditioner.

**BRAND NEW  
1956**

**ITEM  
#1008**

**COMPACT—FITS IN THE TRUNK OF YOUR CAR**

**1000 WATTS OUTPUT**, continuous duty. 115 Volts A.C. 60 cycles, 9 amps. Powered by husky, easy starting Clinton engine. Engine and generator operate at 3600 R.P.M. for maximum efficiency at minimum weight. Both units are mounted on steel base, with heavy sheet metal belt guard. Generator is self regulating, and is equipped with outlet box containing fuse and 2 A.C. convenience receptacles. Cost only 5c an hour to operate. Dimensions: Length 20 $\frac{1}{2}$ ", Width 12", Height 16". Shipping wt. 100 lbs. F.O.B. Chicago.....

**149.50**

**700 WATT—GENERATOR SET**—same as above, slightly smaller—with Briggs-Stratton Engine—Model 708—F.O.B. Chicago.....

**129.50**

**ITEM #2008—2000 WATTS**—115 V. A. C. generator set, powered by husky, fast starting Briggs-Stratton engine. Mounted on portable steel carrying base for easy handling.—Just right for small cottage and cabins needing inexpensive 2000 Watts of electricity.  
Ship. Wt. 190 lbs. F.O.B. Chicago..... **295.00**

## BRAND NEW HEAVY DUTY TWO UNIT VICKERS HYDRAULIC PUMP

• For Hydraulic Presses • For  
Lift Trucks • For Tractors  
• For Road Machinery

The Vickers model V-2129-FLH is actually two hydraulic pumps on a common shaft. The large hydraulic pump is rated at 21 G.P.M., 1000 lbs. P.S.I. at 1200 R.P.M., for conventional hydraulic system and the small pump is rated at 3 G.P.M. and 1000 lbs. P.S.I. for power steering or for a second hydraulic system. Rotation counterclockwise. Use them individually or collectively. Dimensions: 13 $\frac{3}{4}$ " Long X 9" in diameter with 1" shaft. 1 $\frac{1}{2}$ " inlet port and 1 $\frac{1}{4}$ " outlet port on large pump. 1" inlet port and  $\frac{3}{4}$ " outlet port on the small pump. Shipping Wt. 66 lbs. Worth \$212.50. Now priced below the value of the smallest pump!  
F.O.B. Chicago..... **69.50**

**ITEM #417**



**GROBAN SUPPLY CO.** Dept. **PS-9**  
**1139 S. WABASH AVE., CHICAGO 5, ILL.**

## U.S. NAVY ALL BRONZE CENTRIFUGAL PUMP



**ITEM  
#384**

These all bronze Centrifugal Pumps are ideal for use as marine bilge pumps, circulating pumps, fire protection or irrigation, car-washing, dewatering, basement sump pumping, lawn sprinkling. Will pump water, oil, brine, gasoline, DDT and sulphur compounds. Equipped with 6" adjustable 'V' pulley, 2" dia. inlet and outlet, 180 GPM capacity. Inlet and outlet take hose with 2 $\frac{1}{4}$ " inside diameter. Dimensions: 11" x 8" x 11".

Total head-feet	Speed	H.P.	GPM
25	3600 RPM	3	180
35	3000 RPM	11	90
20	2400 RPM	1 $\frac{1}{2}$	75

Back plate may be rotated for most convenient inlet position. Gov't acquisition cost \$96.00. Shipping weight 31 lbs. F.O.B. Chicago..... **29.50**

## 300 AMP. D. C. GENERATORS

**IDEAL FOR WELDING GENERATOR**  
**ITEM #91**

Type R-1, rated 300 Amps.—30 Volts. Mfd. by Jack & Heintz, Government Acquisition Cost \$380.00. Ship. wt. 55 lbs. Dimensions: 16"x10"x7". Complete with instructions to connect as Welder. F.O.B. Chicago..... **35.00**



**ITEM #90**—When connected as a welder, this unit will deliver 200 amps for a sustained period and 250 amps for intermittent service. This generator is widely used for shop-built portable welders. Rated 200 amps, 28 volts, 2500 R.P.M., using 10 H.P. Dimensions: 15" L. x 6" W. x 8 $\frac{3}{4}$ " H. Splined drive shaft. Gov't. Acq. cost \$300.00. Ship. Wt.: 51 lbs. F.O.B. Chicago..... **22.50**



**ITEM #99**—12 V.—50 Amps.—Leece-Neville generator for autos, trucks, road machinery, boats and battery charges. Precision aircraft quality construction, with life-time grease sealed ball bearings and heavy insulated windings. Standard 4-bolt square mounting flange, spline shaft. Dimensions: 16" L. X 8 $\frac{1}{2}$ " Dia. Wt. 23 lbs. Gov't. Acq. cost—\$92.00. Now F.O.B. Chicago.... **16.50**



## EXPLORE FOR TREASURE!

Find gold, silver, coins, jewelry, battle relics! Treasure—Metal—Mineral Detectors. M-SCOPE. Used worldwide for Treasure Hunting. Mineralights, Geiger, Scintillation Counters. Prices from \$14.75. Fully GUARANTEED. Time Payment Plan. FREE Treasure and Uranium booklets. New outfitting catalog. FISHER RESEARCH LAB., INC., Dept. PS-1. Palo Alto, Calif.

**RETAIL PRICE \$125.00**  
**FACTORY TO YOU \$79.95**

**SUPERSHOP** includes precision-built 8" tilting table saw, vertical and horizontal drill press, 30" lathe, sander, grinder. 100% BALL BEARING. Write for FREE catalog, full details, trial plan.

**POWER TOOLS, INC.**



287 YATES AVE.  
BELOIT, WISC.



**FREE**

WRITE FOR  
COMPLETE  
DETAILS AND  
EASY PAY PLAN

## NOW! HOME CRAFTSMEN CAN OWN THIS PROFESSIONAL ARC WELDER

Now you can own a Trindl full 125 amp Industrial Welder at a price far less than smaller machines. With a Trindl 125A you can weld metals up to  $\frac{1}{2}$  inch thick. Operates off either 110 or 220 volt line, properly wired. 16 heat stages from 20 to 125 amps. Make and repair anything of metal around the home, garage, farm or shop, like a professional. No previous experience or training needed. Full "do-it-yourself" instructions with each machine. Complete only \$98.50 f.o.b. factory, or write for details. Trindl manufactures a complete line of heavy duty welding machines. Dealer inquiries invited.

**TRINDL PRODUCTS Ltd., Dept. T3-J**  
1807 So. Clark St., Chicago 16, Ill.



**EASY TERMS  
ONLY \$98.50  
F. O. B.**



**Guaranteed  
12 MONTHS  
IN  
CONTINUOUS  
OPERATION**



## MAKE YOUR OWN BOLTS, BRACES, HANGERS!



now available  
**GALVANIZED!**

## REDI-BOLT® THREADED STEEL RODS

Save repair and construction time. Just cut to length; heat and bend; add std. nuts. Seven sizes:  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{7}{16}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ ", and  $\frac{3}{4}$ ". Handy lengths of 24" and 36". Available in galvanized or blue rust-resistant finish.

Sold in Leading Hardware Stores

**REDI-BOLT, Inc.**

5344 Indianapolis Blvd., East Chicago, Indiana

## For lawn mowers

New 3-in-one Oil-Spra lubricates all over—forms a barrier against rust! Press button for penetrating oil spray!



## "3-IN-ONE" OIL

send for  
**FREE**  
tool catalog

SNAP-ON TOOLS CORPORATION  
8060-1 28th Avenue, Kenosha, Wis.

Send me free catalog.

OCCUPATION .....

NAME .....

ADDRESS .....

CITY ..... ZONE ..... STATE .....



## PROFESSIONAL WOODWORKING CLAMPS

ONLY \$2.00



ONLY  
\$2.00  
POSTPAID

Now, at last, these clamps are available to the home craftsman. Holds work securely and in all positions, *straight* or at an *angle*. 100% better than "C" clamps. Won't mar your work. Packed in kits, complete less jaws. Make the jaws yourself, *any shape*, in one hour with "easy, simple-to-follow" instructions and save 50%. Screws accurately machined from high tensile steel. Clamps open 2 inches Each \$2.00.

4 inch each \$2.50 8 inch each \$2.75

In lots of 4 clamps 10% discount—(most gluing jobs require 4). Send M.O. or check—we pay postage.

**PORTER & DIETSCH, INC., Dept. 109**  
2459 UNIVERSITY AVE. ST. PAUL, MINNESOTA

## SOMETHING NEW!!

High Quality Walnut or Honduras Mahogany furniture plywood in convenient sizes. Same quality as used by Old Craftsmen of Grand Rapids. Sanded Polish—Ready for use: 5 ply  $\frac{1}{4}$ " or  $\frac{3}{4}$ " thickness. Sizes 18" x 36"; 24" x 48"; 30" x 60". Price per sq. ft:  $\frac{1}{4}$ "—45c;  $\frac{3}{4}$ "—75c; F.O.B. Columbia. Special Orders invited—Minimum of 50 Pcs. Maximum Size up to 36" x 72"—low factory prices. For immediate delivery send check or M.O.—no C.O.D. Satisfaction Guaranteed.

CAROLINA PLYWOOD CO., 519 Superior St., Columbia, S. C.

### SURPLUS SALE

**\$39.50** NEW TOOL POST GRINDERS  
REGULAR PRICE \$125.00  
1-6 H. P. MOTOR  
TAKES WHEELS UP TO  $\frac{1}{2}$ " x 4"  
EXTRA QUILL EXTERNAL OR  
INTERNAL \$19.50  
MONEY BACK GUARANTEE  
EDWARD J. NOLAN, PULASKI, NEW YORK

## NAME PLATES

### PROTECT AGAINST LOSS

NEW ADHESIVE-BACK NAMEPLATES—your name and address EMBOSSED in .016 aluminum,  $\frac{3}{16}$ " by  $\frac{27}{32}$ ". Prevent loss of property. No mounting skill necessary. No tools, brads, screws, drilling. STICKS to metal, plastics, wood, glass; porous or crackle finish surfaces! Available only by mail. KIT includes nameplates, solvent, full instructions. Send \$1 for yours NOW! 2—\$1.50, 3—\$1.95. PRINT name and address. Prepd. only—SATISFACTION GUARANTEED.

MARSH HITCHCOCK 625 Cascade Bldg. Portland 4, Oregon



A big, fact-packed catalog full of pictures and tool information . . . yours for the asking.

- Snap-on tools help you handle repair jobs faster, easier, better.
- Snap-on tools LAST . . . pay for themselves over and over.
- Used and endorsed by America's top-earning mechanics in all fields.
- Start building your Snap-on set with basic units . . . add other tools any time.

**Snap-on Tools**  
THE CHOICE OF BETTER MECHANICS



## Wonderful WOODLAC FINISH



**NEW, FAST DRYING, CRYSTAL CLEAR FINISH MAKES INTERIOR WOOD FINISHING A JIFFY-CINCH** for even the inexperienced.

Natural wood-grain panelling, new floors, furniture, interior woods of any kind, take on a "Master Craftsman Finish" without effort. Woodlac is available in either Clear-Gloss or Satin. You can prime seal and finish any surface in one day. Ready-to-use Woodlac resists stains of alcohol, grease or water...wipes clean with a damp rag.

**BUY WOODLAC FROM YOUR PAINT, HARDWARE, LUMBER DEALER** or send \$1.00 for sample pint, postpaid, guaranteed.

**FREE** wood-finishing pamphlet and color literature with every order or free on request.

**LINSEED OIL PRODUCTS CORP.**

1102K So. Fremont Ave., Alhambra, Calif.

## NOW You Can DRILL, SAW, REAM, CUT... ALL WITH ONE BIT!

Beaver's new improved Hi-Speed side cutting drill bit can be used on any electric drill, drill press, lathe, etc. Made from the finest American hi-speed steel. 3 1/4" long, 2" side cutting section, 1/4" diameter. Designed to cut steel, wood, plastic, aluminum, etc. **MONEY** back guaranteed. Specify types desired. All Purpose, Wood and Heavy Metal. **BUY** From Your Dealer or send check or money order today. Dealer inquiries invited. Ideal Xmas Gift.

**BEAVER DRILL & TOOL CO., 3006A McGee Trafficway, Kansas City, Mo.**



**BEAVER  
Hi-Speed-Saw  
DRILL BITS**

**ONLY  
\$2.45 each 3 for \$7.00**

## BUILD YOUR OWN ARC-WELDER DC or AC

**FOR LIGHT OR HEAVY WORK**

We show you how to build powerful welders without rewinding. Complete plans for both A.C. and D.C. welders, easy to build, low cost, worth hundreds of dollars. Price 35c. **Send today**, we'll include **FREE** our Big War Surplus, Welder, Electrical catalogs.

**LEJAY MFG. CO. 2903 EMERSON SO. MINNEAPOLIS 8, MINN.**



## KING MIDGET

Drive it for 75c per week. Rider Agents wanted—earn your own car free. Also **KING MIDGET JUNIOR** chassis, finely engineered, ready to run and priced at a fraction of any similar car. **GET THE FACTS.** Send 25c for 32 page picture book giving special prices and agents proposition on both cars. Or send \$1 (refunded first order) for this plus actual assembly book and service manual.

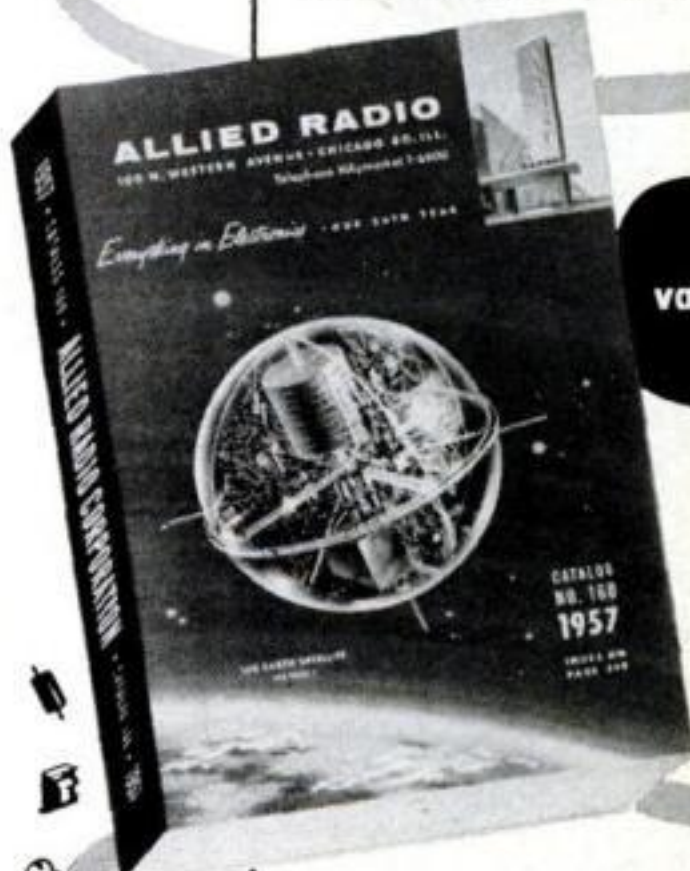
**MIDGET MOTORS CORPORATION, ATHENS 2, OHIO**



**free**

world's most complete  
electronic buying guide

## ALLIED'S 1957 ELECTRONIC SUPPLY CATALOG



**356  
value-packed  
pages**

**SAVE on  
Everything  
in  
Electronics**

**World's Largest Stocks...  
Everything For Experimenters,  
Builders, Amateurs, Servicemen,  
Engineers & Hi-Fi Hobbyists**

Send for **ALLIED'S** value-packed 356-page 1957 Catalog. Save on *everything* in Electronics: Hi-Fi systems and components; latest builders' kits (see the famous **KNIGHT-KIT** line); recorders and phono equipment; TV tubes, antennas, accessories; Amateur station equipment; test instruments; industrial electronic equipment; plus the world's largest stocks of parts, tubes, transistors, tools and books. Save on *everything* in Electronics—send today for your **FREE 1957 ALLIED Catalog!**

**Everything in Electronics  
From One Reliable Source**

**Our  
36th year**

## ALLIED RADIO

**ALLIED RADIO CORP., Dept. 7-JJ-6  
100 N. Western Ave., Chicago 80, Ill.**

☐ Rush **FREE 1957 ALLIED 356-Page Catalog**

Name

Address

City  Zone  State



# Now! Cover plywood edges with real wood

New Flexible

## Weldwood<sup>®</sup> Wood-Trim<sup>\*</sup>

Avoid unsightly edges in building any plywood project—tables, desks, cabinets, etc. Give them a "pro" finish with Weldwood Wood-Trim. So flexible you can beautify any edge—straight, curved, angled. In handy rolls, Wood-Trim is a cinch to apply. No clamps, nails, hot iron, etc. Just use Weldwood Contact Cement or Presto-Set<sup>®</sup> Glue.

Countless Decorating Uses!

Trim lamp shades with Wood-Trim! Decorate picture frames! Smarten coffee tables, clocks, waste baskets, etc. 8 ft. rolls 1" wide. Oak, African Mahogany, Walnut, Birch, Fir, Korina.

For perfect wood finishing jobs, use **FIRZITE<sup>®</sup>** and **SATINLAC<sup>®</sup>**.

Another  
Weldwood  
Wizard

At hardware, paint, lumber dealers. Write for free leaflet to Dept. PS9-6WT.

•Trade Mark

UNITED STATES PLYWOOD CORP., Box 525, New York 46

### 10" TILT/ARBOR SAW BUILD-IT-YOURSELF from GIL-BILT KITS-PLANS

Sturdy wood, steel, and aluminum construction. NEW DEPARTURE ball bearings. Capacity and performance of floor saws selling for \$150.00 and up. Plans, all metal parts in kit with 10" comb. blade \$25.90, less blade \$22.95. F.O.B. St. Louis. Detail PLANS-PATTERNS only \$1.00 postpaid.

Build-it-yourself 12" and 18" Bandsaws, 6" Belt Sander, Shaper. Simplified plans, build easily with hand tools only. Advertised and sold for 8 years, over 30,000 units in use. Money back guarantee. FREE CATALOG.

GILLIOM POWER TOOLS Dept. 70-J Lambert Field, St. Louis 21, Mo.

most amazing blade you ever saw!

## Tyler SPYRAL BLADE

SAWS METAL, WOOD, PLASTIC, ETC.  
up or down, right or left, even in circles!



Does what no other Blade can Do. Fits Standard Coping Saw or Hacksaw Frames. NO special adapters needed! World's safest saw blade.

You'll find hundreds of uses for Tyler Spyral Blades. There's nothing like them! The first important improvement in blades since the invention of the saw. Fun to use... cuts so fast and easy; no chipping or tearing—leaves clean smooth edge.

At Hardware, Lumber, Automotive and Variety Stores or Send \$1 for package of 12 Spyral Coping Saw blades—OR —3 Spyral Hacksaw blades to Dept. S

TYLER MANUFACTURING CO. 1005 W. Arbor Vitae Ave., Inglewood, Calif.



### SHEET METAL BRAKES

Forms angles, locks, pans, etc. Quick eccentric clamp. All steel construction.

15"—16 gauge steel.....	\$23.50
36"—22 gauge steel.....	35.50
48"—24 gauge steel.....	52.00
49"—16 gauge Bender.....	42.00
12"—12 gauge Bender.....	16.00
18 gauge Electric Bench Shear.	48.00
1/4 x 3 Adjustable Bender....	11.50
16 ga. 7" Bench Shear, 3 adj. ga.	16.50
30"—20 gauge Curve Former..	9.50

ORDER DIRECT OR SEND FOR FREE CATALOG

VYKE MFG. CO., 4158-N Jason St., Denver 11, Colo.

### ONE-MAN SAWMILL LOW \$50<sup>00</sup> AS... 50<sup>00</sup> DOWN



Take BELSAW Portable Sawmill right to the trees—turn out valuable lumber for home and farm—sell to local yards—make up to \$50 a day custom sawing for neighbors. BELSAW lasts a lifetime. No crew needed. Power with tractor or auto engine. Beginners get excellent results. Send today for FREE BOOK.

BELSAW MACHINERY CO

3477 Field Bldg. Kansas City 11, Missouri

### EXCLUSIVE DOUBLE-BEARING HEAVY DUTY PUMPS



IRRIGATE • DRAIN • CIRCULATE • SPRAY  
Up to 7,500 GPH; 1,000 GPH 60' high; or 3,000 GPH from 25' well. Use 1/4 to 1 HP motor. 1 1/4" inlet; 1" outlet. Stainless shaft. TYPE X—2 oil-less \$10.95 bronze bearings. Won't rust. TYPE XB—Ball bearing model. \$12.95 Best for belt drives.

Postpaid if cash with order. Don't delay—send for yours today!

MONEY BACK GUARANTEE  
Centrifugal and Gear Pumps in All Sizes  
LABAWCO PUMPS, Belle Mead 4, N. J.

### Wholesale! TOOLS! GUNS! CAMERAS!

BUY TOOLS PHOTO EQUIPMENT, SPORTING GOODS, JEWELRY AND THOUSANDS OTHER NATIONALLY ADVERTISED PRODUCTS AT BIG DISCOUNTS. SAVE ON OWN PURCHASES. BIG PROFITS SELLING TO OTHERS. POSTCARD BRINGS FREE COPY "THE WHOLESALE PLAN"

AMERICAN BUYERS SERVICE

Get up to  
40% off

HERTEL STATION, DEPT. 8, BUFFALO 16, NEW YORK

### WELD IT YOURSELF IN A JIFFY!

Weld, Cut, Braze, Solder; Iron, Steel, Brass, Bronze, Aluminum and other metals safely and easily. Make your wrought iron furniture, porch railings, fences, knick-knacks and other metal specialties. With this fine equipment anyone can do professional-like work with little practice. The Dynamic is an industrial type transformer arc welder designed to operate from any properly wired 110 volt AC line.

NOW as a SUMMER SPECIAL you will receive an \$8.00 Twin Carbon Arc Torch FREE to complete your welding workshop. Order TODAY!

Literature on larger equipment available on request.

DYNAMIC WELDER COMPANY, 1808 S. Federal Street, Dept. D3-J, Chicago 16, Illinois

#### EASY PAY PLAN

Low down-payment. Pay as you weld. Money back guarantee. Complete outfit including special SUMMER GIFT.

Only \$38.50  
F.O.B. Factory





**12 PIECE SPORTS KNIFE**  
**NEW IMPORT** IDEAL GIFT FOR SPORTSMEN, ETC.  
Eliminates 12 ITEMS from your PACK or TOOL KIT. Contains a regular knife blade, fork, spoon, fish scaler & bone saw, draw knife, scissors, can and bottle opener, screwdriver, cork screw, metal file, owl punch - ALL mounted in a rugged, 4-5/8" bone covered handle. Complete with a genuine leather holster. **395**  
Buy from Importer. \$12.95 value

## SAVE 40% ON BRASS TIPPED HARDWOOD LEGS

Beautifully turned and sanded, fully seasoned hardwood legs. Complete with genuine brushed brass tips and sturdy steel mounting plates. Available finished or unfinished - Finished units come in Blonde, Silver Fox, Mahogany or Charcoal Black. Please Specify Finish.

SIZE	FINISHED	UNFINISHED
4"	\$2.65	\$2.15
6"	3.00	2.65
8"	3.55	3.00
12"	3.95	3.55
14"	4.40	3.95
16"	4.75	4.40
18"	5.35	4.75
28"	6.25	5.35

## PALLEY BARGAINS "DIVING EQUIPMENT"

**PALLEY DIVING LUNG KIT**  
BUILD YOUR OWN - Save up to \$100. Our special folder has complete instructions showing how it's done. Kit includes Air Bottles, Pressure Regulator, Safety Belt, Air Hoses, Mouth Piece, Clamps, Valves, Shoulder Harness, etc.

Price for above Kit with two Air Bottles (1 hour time) \$150. val. **4595**

## FREE DIVING EQUIP. CATALOG

Complete with latest info. on newest developments in underwater diving equipment.

Also an illustrated article on "How to build your own Diving Lung". Write Today.

## NEW NYLON ROPE

Very finest quality. Lustrous white color.

SIZE	Strength	PRICE
1/4" Nylon	1100 lbs.	9¢ run ft.
3/8" Nylon	2700 lbs.	17¢ run ft.
1/2" NYLON	5000 lbs.	27¢ run ft.
11/16" Nylon	13500 lbs.	39¢ run ft.
15/16" Nylon	17500 lbs.	57¢ run ft.
1" Nylon	18000 lbs.	62¢ run ft.

## SAVE ON UNIVERSAL JOINTS

**90° to 180° UNIVERSAL**  
Has a heavy duty, solid cast Bronze body. Rotates from 90° to 180° as desired. Has 29/32" diam. steel shafts with ball & socket joint. Excellent condition. **595**

Write TODAY for complete list of many other types of Universal Joints, Hoists, etc.

## SAVE ON METAL WORKING CARBON STEEL TWIST DRILLS

Made by Cleveland, Morse, etc. All are Unused and in excellent cond.  
3/16" Aircraft, threaded shank. 9¢ ea.  
11/16" Taper shank. 89¢ ea.  
63/64" Taper Shank. 99¢ ea.  
2" diam. Taper Shank. \$2.29 ea.  
No. 10 wire gauge. Strt. Shank. 15¢ ea.  
SAVE on Surplus Drills. Hundreds more in stock. Write for complete list of other sizes and remarkable prices.



**GENUINE SELECT PHILIPPINE MAHOGANY PLYWOOD**  
**DIRECT FROM IMPORTER**  
For Fine CABINET WORK, FURNITURE, Paneling DENS, OFFICES, HOTELS, etc.  
Our prices are LESS THAN DOMESTIC PLYWOOD at WHOLESALE. This selected LUAN MAHOGANY meets the most rigid specifications. It is WEATHER and WATER RESISTANT. You'll be amazed at the beauty of this fine wood. Its rich golden elegance will thrill you. Rotary cut for beauty of grain. Both sides sanded and ready to use. Bonded with finest resin adhesive. Face side unjointed.

**FREE SAMPLE ON REQUEST**

Available in three thicknesses - 3mm (approx. 1/8"), 4mm and 1/4". ALL orders shipped by special Truck for lowest rates. No order accepted for less than 100 lbs. - equal to (4) 1/4" sheets, (6) 4mm sheets or (8) 3mm.

**3MM (1/8") X 3 FT. X 6 FT. \$500 VALUE**  
**179 PER SHEET**  
MINIMUM ORDER 8 SHEETS

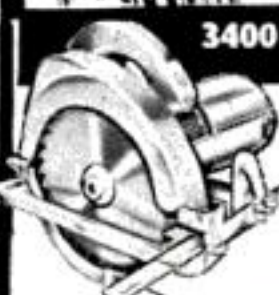
**1/4" X 4 FT. X 8 FT. 950 VAL.**  
**449 PER SHEET**  
MIN. ORDER 4 SHEETS



## SAVE 50% ON TRANSLUCENT FIBERGLAS PANELS

Use it for patio covers, interior decor, walls, partitions and many other uses. Ideal for the home, office, shop, indoor or outdoor installations. Finest quality. Available in many widths and lengths. Excellent color selection. Write for a FREE Sample and Booklet.

**Only 49¢ SQ. FT.**



## 3400 RPM - 1/2 HP POWER SAW

**RIPS - CROSSCUTS**  
**CUTS A FINISHED 2x4 LIKE KNIFE THROUGH BUTTER**

COMPARES TO SAWS SELLING UP TO \$49.50 **1998** Complete with 5-1/2" Blade

A rugged, professional type, adjustable saw. Will cut any angle from 0 to 45°. Has an adjustable (0 to 6") rip fence. Safety-trigger switch on handle. Full 1/2 HP Universal AC-DC, 110-120 Volt, 60 cycle motor. Weighs only 6 1/2 lbs. Thousands already sold. Your satisfaction guaranteed.

**EXTRA SAW BLADES** - Available in Rip, Crosscut or Combination. Please Specify **235EA.**

## NEW POWER SAW BENCH TABLE

This sturdy, precision made bench-saw table converts our famous power saw (above) to a handy bench saw. Permits angle and bevel cuts, rip, crosscut & comes with rip fence and mitre guide. 14"x 16" table, 6" high.



**NEW ONLY 995**



## 1/4" ELECTRIC DRILL with "JACOBS" CHUCK

One of the greatest Drill Values ever offered. Has heat treated gears, self-lubricating bronze bearings and genuine Jacobs type Chuck. Fully air cooled. Safety trigger switch. A tool of many uses for drilling, grinding, sawing, punch-press, etc. **NOW 995**



## NEW HEAVY DUTY CHAIN SAW

WITH 18-INCH CHAIN and GUARD  
Here is a portable, gas engine powered, chain saw that cuts logs up to 18" dia. Has a two-cycle, aircooled engine with dual accelerator controls and grip-right handles. Develops a high cutting speed for straight or angle cuts. Built for rugged, heavy duty use. With solid aluminum chain guard. **15995**



## 133PC. POWER TOOL ACCESSORY KIT

A complete accessory set for ALL small jobs. Can be used with any electric drill or grinder. Contains 133 pieces which include grind, polish, cut-off & buffing wheels, sanding discs, steel cutters, mandrels, burnisher, mounted stones and knife edge rubber wheels. Save 50%... **198**



## NEW 4-SPEED BARBEQUE MOTOR

Ideal for Barbeque Spit, Home Shop, etc. Has four take-off shafts turning at 5, 25, 150 & 4000 RPM. Operates on 110 volt, 60 cycle current. A \$24.95 VALUE... **895**



## PALLEY HYDRAULIC BARGAIN

VICKERS BRASS FOUR-WAY VALVE - An example of our Values. Will stand 2500 PSI. A heavy duty valve with ALL Brass Body. Closed center, off in neutral. For use with all liquids. **3750**

**FREE HYDRAULIC EQUIPMENT CATALOG** - No. C-3 - Fully illustrated and priced. Save up to 85%. Includes Pumps, Fittings, Valves, Motors, etc.

## GIVE THE KIDS A THRILL CRYSTAL RADIO



A GENUINE CRYSTAL RADIO SET. Picks up standard broadcast stations without using batteries or electricity. Just plug-in headset, antenna and ground wires, then tune-in your favorite program. You'll be amazed at the STRONG, CLEAR SIGNAL. Has a 100 KC tuning range. Comes complete with Receiver, Antenna and Ground Wires PLUS a 2000 Ohm Headset. Order Today. **395 NEW**

## SOUND POWER PHONES

Originally used by the Navy for gun control. Ideal for emergency communication because each set is 'sound powered'. Will operate up to 1/2 mile distance.

Set includes 2 phones on chest plate, 2 headsets, approx., 35 feet of wire. **995 PER SET**

## 2PC. 4-6-10 POWER EYE LOUPE

Provides three separate powers of magnification in one handy 2-piece unit. A 4 power and a 6 power lens is interchangeable or they may be combined for 10 power. **125**

## AIR CORPS RUBBER BOATS

Ideal for Fishing or Hunting. Made to Gov't specs. Reconditioned and ready-to-use. Supply Limited.

1 MAN **2295** 6-7 MAN **6950**

HAND AIR PUMP **395**

COLLAPSIBLE OARS **125EA**

## NAVY WADING SUITS

Ideal for Surf or Deep Stream fishing. Also whenever necessary to protect body or clothes from mud, moisture, etc. Made of heavy duty rubberized canvas with vulcanized seams, built-in boots & gloves. Sizes: Med. **895**

## WATERPROOF ARMY BEDROLL

Large 80"x96" heavy duty duck canvas bedroll. Has roomy pockets in each end to hold extra gear. An ideal enclosed ground cloth for a sleeping bag or air mattress. Complete with (3) 8ft. web straps and buckles. A SURPLUS BUY! **595**

## NEW ARMY CANTEEN & REISSUE CUP AND BELT

A one quart canteen and aluminum cup fit into the insulated canvas cover. Choice of web type pistol belt or cartridge belt with pockets. The canteen is new Korean War Surplus. **259**

## PORTABLE, FOLDING SHOVEL

With a 20 inch hardwood handle. Blade will fold to form a pick. Ideal for gardening or use in an emergency. **198**

## MACHETE

22" Vanadium Steel Blade with a 5" hardwood handle. Comes with rugged belt sheath. **198**

## BOLO KNIFE

Top quality steel blade, 15" long. Comes with belt sheath. Ideal for clearing brush. **198**

## ARMY PICKMATTOK

Small, easy to use and pack. Has 12" steel head with pick on one side, mottok on other. 16 1/2" hardwood handle. With case. **198**

## FREE BARGAIN CATALOG

Loaded with RED HOT BARGAINS for the whole family. Outdoor & Camping equipment. Optical Items. Sporting Goods. Models & Supplies. No. C-8

**Palley's**

2263 E. VERNON AVE., DEPT. PS-9  
LOS ANGELES 58, CALIF

Order From This Ad. Pay by M.O. or check. P.O.'s acceptd. from D&B firms. 1% deposit with C.O.D.'s. All Prices FOB Los Angeles WRM



## Volkswagen Races 858 Miles

[Continued from page 298]

"This is great," I said. "This is just fine. Now we haven't got a ghost of a chance of beating the Continental's time to New York. The Volkswagen let us down."

"It's the other way around," responded Lockett. "You're going to let the Volkswagen down—if you don't subtract this time out from your total. You subtracted time out for the overnight stop, didn't you?"

Well, there were two ways of looking at it. I felt better.

**Before the fuel truck arrived** a lot of time passed. By the time we got the engine started again, we had been idle for 47 minutes.

It was two p.m. before we paid our toll at the northern end of the New Jersey Turnpike. We were now only 16 minutes ahead of the Continental's time. And we hit traffic. I chafed.

It was 2:09 when finally we scooted onto the George Washington Bridge. Two minutes later we had crossed from the New Jersey to the New York side.

I looked at Lockett's alarm clock and checked the odometer. We had covered 858 miles since leaving Chicago's South Side. Our total driving time, including fuel and food stops—but deducting the time out with the dry tank—had been 17 hours, 11 minutes.

The Continental had required seven minutes longer.

But we had snatched an advantage of 12 minutes at the very start by setting off from South Chicago instead of from the Loop, and at a time when traffic was light. The real, conclusive difference in time was in the length of the food-fuel stops. The Continental stopped for a total of an hour, 47 minutes, the Volkswagen for only an hour, 12 minutes.

As we drove into the steel-and-concrete canyons of New York, with the sun striking fire off its minarets, Lockett had one last observation.

"You know," said he, dreamy-like, "I wonder how long you have to wait to get one of these things. . . ." END



**NEXT MONTH:**

## PSM's Hi-Fi Fair

THE machinery that makes good music in your home will make good reading in October POPULAR SCIENCE. You'll find a 16-page special section packed with the solid facts on hi-fi you've been looking for: the inside story on radically new and better equipment, straight-from-the-shoulder reports about vital components, practical tips to help you get the best out of the equipment you have.



2016-2017

This One:



CJH4-NFQ-B422



*For your Ford - always specify the oil filter with the*  
**MICROSCOPIC "STRAINER"**

"Dust so small it can't hurt your eye, *can* hurt your engine," says Robert Pocock, Ford's Filter Research Engineer. "That's why it pays to ask for Genuine Ford Oil Filters. They are manufactured to the world's *highest* oil filter specifications. Their filter element must be able to strain microscopic particles *1/100* the size of the dot (•) shown here!"



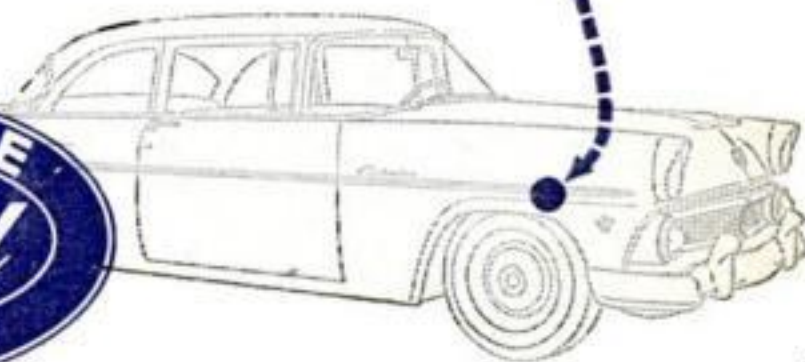
*Genuine Ford Oil Filters, like all Genuine Ford Parts, are designed to rigid Ford specifications!*

When a replacement will add to your Ford's performance (whether it's an oil filter, shock absorber, or anything else) it pays to say, "*Genuine Ford, please!*"

*That way you know you're getting the part that's been made right to work right in your Ford. And, all Ford Parts must pass special endurance tests before being approved for manufacture.*

Do right by your Ford with Genuine Ford Parts . . . *made right to fit right to last longer!*

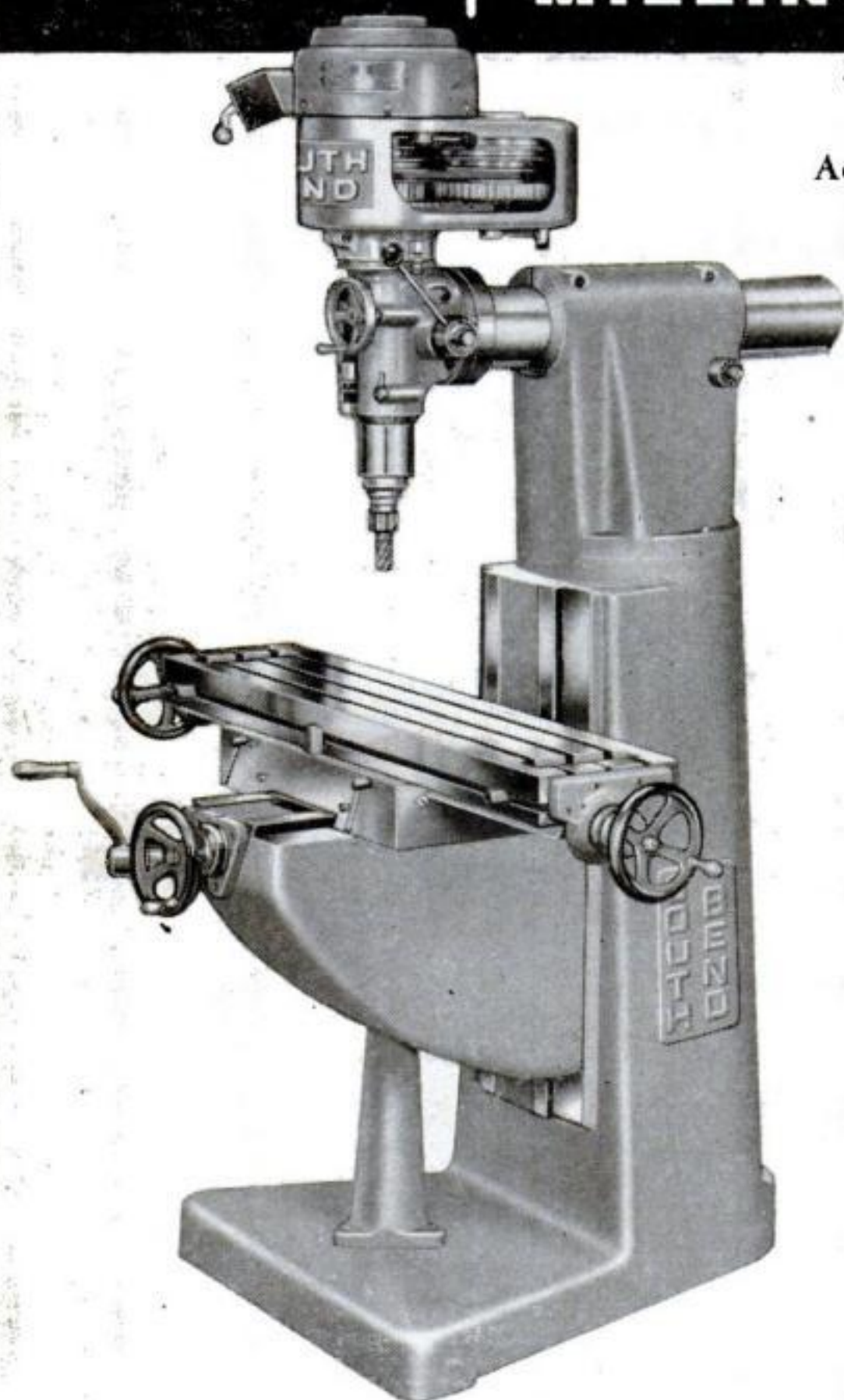
**Keep your Ford all Ford**





# New

## SOUTH BEND PRECISION VERTICAL MILLING MACHINE



Adequate capacity, accuracy and speed give this new milling machine the ability to keep machining costs low on a wide variety of work. Its simplicity of design provides ease of accessibility and set-up. Reduces operation and job change-over time to a minimum. Ideal for toolroom, production and maintenance work. *Write for information.*

LO-LOSS spindle drive. Precision ground and fitted quill.

Positive action controls with large, adjustable, graduated collars.

Power longitudinal table feed and automatic quill feed optional.



### SPECIFICATIONS

Table travel.....20 or 30"  
Cross feed.....9½"  
Spindle to table (max.).....20"  
Spindle to column (max.).....20"  
Ram travel.....15"  
Spindle speeds.....8  
Head rotation.....360°



**SOUTH BEND LATHE** South Bend 22, Indiana  
Builders of lathes, milling machines, shapers, drill presses, pedestal grinders




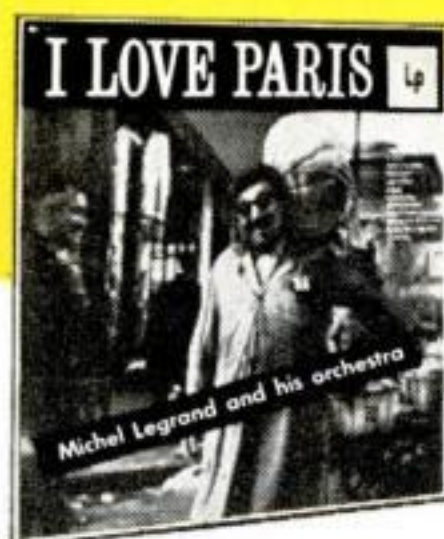


# Your choice of

SUPERB HIGH-FIDELITY

## 12" COLUMBIA RECORDS FREE

if you join the Columbia  Record Club now—and agree to accept as few as 4 selections during the coming 12 months



### Choose ANY 3 of these Records FREE

**Ports of Call**  
Philadelphia Orch., Ormandy, conductor. Bolero, La Valse, Pavana, Clair de Lune, Escales, Espana.

**The Voice**  
Frank Sinatra sings 12 numbers that first brought him fame like *Fools Rush In*, *I Don't Know Why*, etc.

**King of Swing: Vol. 1**  
Benny Goodman and his Original Orchestra, Trio and Quartet. *idin' High*, *Peckin'*, *onglow*—8 more.

**My Fair Lady**  
Merce Faith and his orchestra play music from this hit show.

**Mendelssohn: Violin Concerto**  
**Tchaikovsky: Violin Concerto**  
Zino Francescatti, violin; N.Y. Philharmonic, Dimitri Mitropoulos, conduct.

**6 I Love Paris**  
Michel Legrand and Orch. play *La Vie En Rose*, *Paris*—12 more!

**7 Jazz: Red Hot & Cool**  
Dave Brubeck Quartet in *The Duke*, *Love Walked In*—5 more.




**8 Levant Plays Gershwin**  
3 works—*Rhapsody In Blue*; *Concerto in F*; *American in Paris*.

**9 Saturday Night Mood**  
12 popular bands play favorite dance music. Jimmy Dorsey, Les Elgart, Les Brown, Sammy Kaye and others.

**10 Beethoven: Symphony No. 5**  
Mozart: *Symphony No. 40*  
Philadelphia Orch., Ormandy, conductor.

**11 Music of Jerome Kern**  
Andre Kostelanetz and his Orchestra play 20 Kern favorites—*You Are Love*, *Yesterdays*, *Bill*, etc.

**12 Ambassador Satch**  
European Concert Recordings by the great Louis Armstrong and his All-Stars—*Tin Roof Blues*, *All of Me*, *Muskrat Ramble*, etc.




**YES!** You may have, FREE, ANY 3 of these best-selling 12"  records. We make this unique offer to introduce you to a saving program of the Columbia  Record Club... a program that selects for you each month the greatest works in every field of music performed by the world's finest artists and reproduced with the shining brilliance for which Columbia  records are famous.

#### HOW THE CLUB OPERATES

To enjoy the benefits of this program — and to receive your 3 records — fill in and mail the coupon, indicating which of the divisions best suits your musical taste: Classical; Jazz; List and Dancing; Broadway, Movies, Television and Musical Comedy.

Each month you will receive free the informative Club Magazine, which describes the current selections in all four divisions. You may accept or reject the monthly selection for your division. You may also select records from other Club divisions. This unique advantage assures you of the widest possible choice of recorded entertainment. Or tell us to send you NO record in any month. Your only obligation is to accept as few as four selections from the almost 100 that are offered during the next 12 months, and you may cancel membership at any time thereafter. The records you want are mailed to your home, billed to you at only \$3.98 plus a small mailing charge.

#### FREE BONUS RECORDS GIVEN REGULARLY

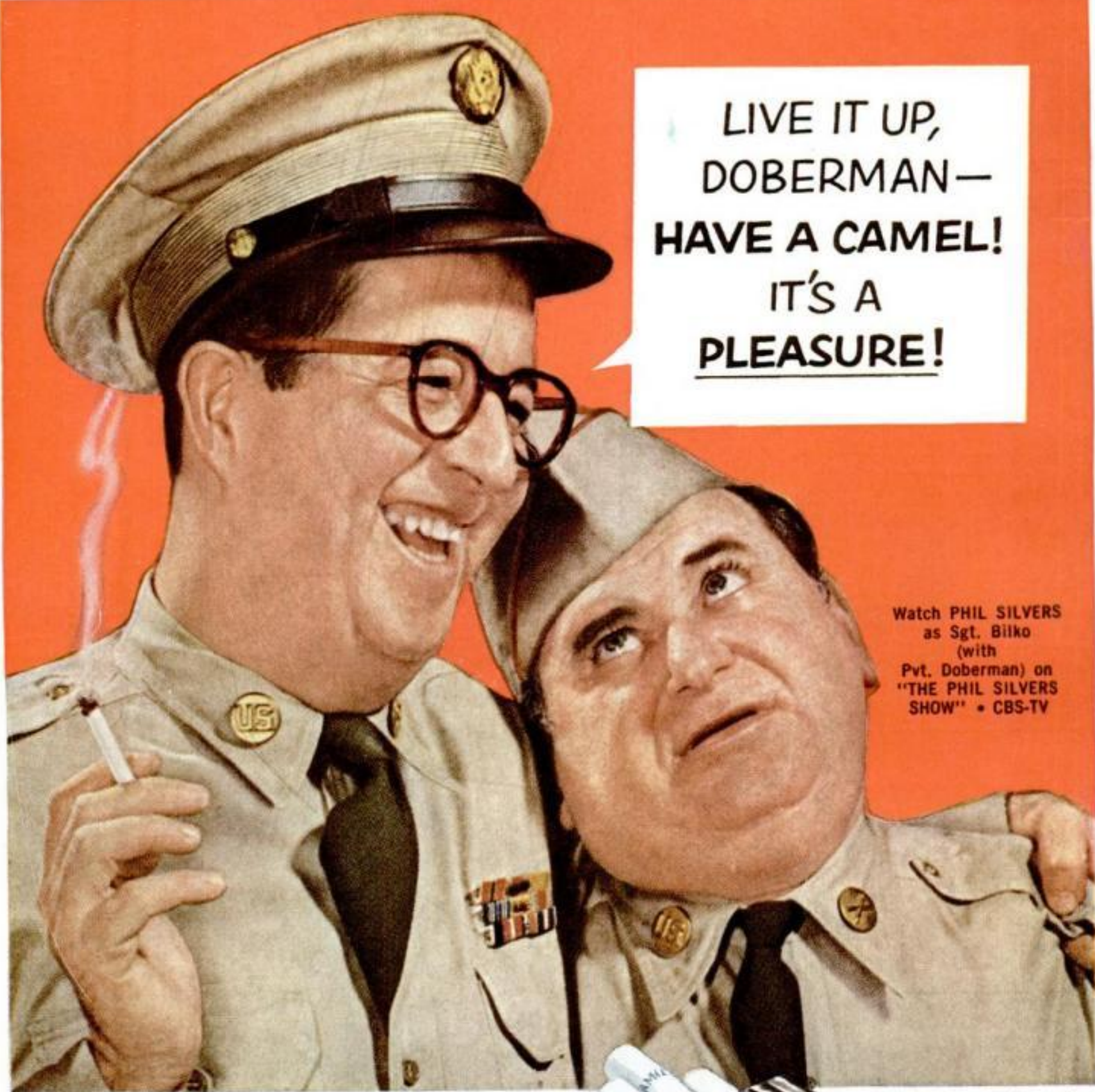
The 3 records sent to you now represent an "advance" of the bonus system — given to you at once. After fulfilling your obligation by purchasing 4 records, you receive an additional free Bonus record of your choice for every two additional Club selections you accept. These bonus records are superb 12" Columbia  records — the very best of the world-famous Columbia  catalog — just like those shown here. So you are given a Columbia  record free for each two record purchase. Membership provides the best buy in records — anywhere.

#### CHOOSE YOUR 3 FREE RECORDS NOW

Mail the coupon — indicating which 3 records you want free — to the division you prefer. You must be delighted with membership or cancel by returning the free records within 10 days.



LIVE IT UP,  
DOBERMAN—  
HAVE A CAMEL!  
IT'S A  
PLEASURE!



Watch PHIL SILVERS  
as Sgt. Bilko  
(with  
Pvt. Doberman) on  
"THE PHIL SILVERS  
SHOW" • CBS-TV

No two ways about it —  
Camel's got what it takes! Camel's  
exclusive blend of quality tobaccos  
brings you the finest taste in  
smoking. *Try* Camels — by far the  
best-liked cigarette in America today!



Only **Camels**  
taste so rich, yet smoke so mild!